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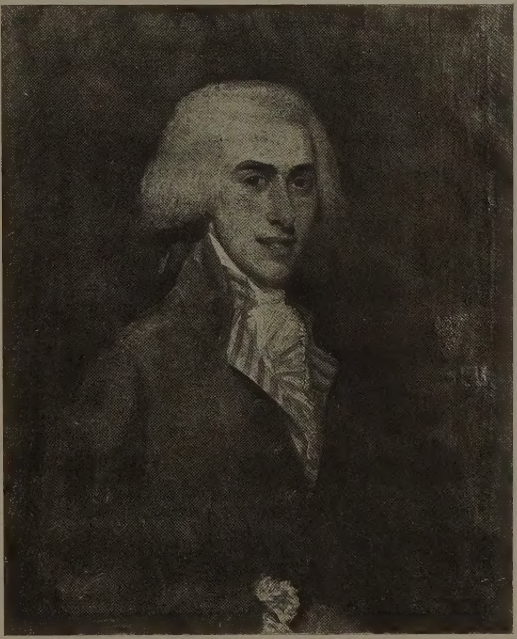
Charles Bulfinch, the First American Architect

By M. A. S. Shannon

THE American Wing of the Metropolitan Museum, with its comprehensive and fascinating collection of early architectural interiors, and the skilled craftsmanship displayed in their furnishings, will do much to quicken interest in a subject intensely national in its scope.



Portrait of Charles Bulfinch, Painted in London in 1786. (Loaned by the Bulfinch family to the Massachusetts Historical Society.)

Its educational value can hardly be estimated, for it will afford an opportunity to study, at first hand, the beginnings and later development of our architecture and art crafts. There is undoubtedly abundant need of enlightenment in this respect. People in general know comparatively little about the whole subject, and are in the habit of lumping together everything built in this country, before the first quarter of the nineteenth century, under the head of Colonial architecture.

The term has been stretched to cover the whole period of two centuries, from 1620 to 1820.

In its original and natural sense, Colonial applies to architecture before the Revolution. The great point of division in American history, as in its arts and culture, is the Revolution. The two fundamental periods into which it divides may be properly called the Colonial and the Federal, or National, dating from the days of the new republic to the second decade of the nineteenth century.

The necessary distinctions within the Colonial period, between the work with renaissance forms in the eighteenth century and the essentially mediæval work of the seventeenth century, may best be made by the use of the century names themselves. In the American Wing the different periods represented are thus designated. The terms Georgian and Jacobean, frequently used in connection with Colonial architecture, have limited and artificial meanings and are likely to confuse the uninitiated. The evident aim of the Museum administration has been to simplify as far as possible. Great pains have been taken to secure historical accuracy in the equipment and furnishing of the rooms, and a chronological sequence is the only concession to the scientific side.

It is surprising, in view of the study already devoted to individual buildings, how little has yet been done to trace the course of development through which different features passed during the long period of their use. We know the successive changes which the Gothic flying buttress underwent, as the result of experiment, far better than we know the similar changes through which Colonial motives, such as doorways or interior panelling, passed in the course of study by generations of craftsmen. The opportunity afforded by the American Wing to study the development of woodwork chronologically cannot fail to produce greater intelligence and sympathy in modern designing in similar forms.

Moreover, respect for the fathers will be duly augmented by acquaintance with the serene and handsome environment to which they were accustomed. The luxury in which they indulged was controlled by a fastidious taste for refined simplicity, that presents a striking contrast to modern exotic interiors, hot and heavy as over-decorated playhouses.

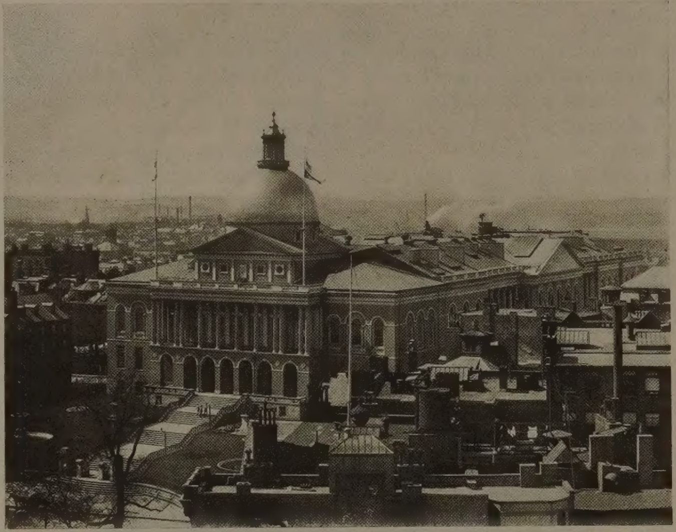
A city or a nation should represent in its art, itself, its people, its industries, its life; and should do so sincerely and sanely.

Probably there is no period in our country's history of which this is more the case than in the prosperous years immediately following the adoption of the Federal Constitution by the fifteen States. The twofold readjustment from a war to a peace basis and from a colonial to an independent form of government naturally occasioned no little disturbance and hardship. The men of Boston who had taken the lead in the fight for independence now stood squarely on the side of a political system whose soundness and wisdom assured national stability and union. Their next step was to set themselves with a grim determination to the hard task of redeeming their losses and restoring prosperity at home. Boston was practically rebuilt, between 1790 and 1815, in a distinctive style of Federal architecture of which Charles Bulfinch was the originator and chief exponent. He and his school gave to Boston a distinction that even the imitators of Renaissance, Gothic, and French Renaissance have been unable wholly to efface.

With the new era of prosperity, there came a marked change in the tone and manners of the community. The simpler tastes of provincial times gave place to a desire for a more ambitious style of living.

The successful merchants of federated Boston sought to perpetuate their names and glorify their city by mansions, churches, and public buildings of a new kind of magnificence. Society was quite as aristocratic as that of Philadelphia or London. It differed from that of Salem as the graceful curves of Bulfinch's dining-rooms and spiral staircases differ from the austerity of McIntire's interiors. Bulfinch himself was a product of this new social order. He possessed every advantage of birth, education, and wealth. The son and grandson of eminent physicians, he graduated at Harvard in 1781, and made the usual finishing trip to Europe when he was twenty-one.

It was a critical moment in the history of American architecture, but by a singular good fortune it was precisely at this point that young Bulfinch decided to adopt for the first time in New England the unrecognized profession of architecture. Christopher Wren is said to have slipped into architecture "over the wall," so to speak, like Bunyan's "Formalist and Hypocrisy," his early life being devoted to science rather than to art. So with Bulfinch, who planned to follow his father's profession. During his travels, however, the splendid examples of European architecture which he saw aroused his enthusiasm and quickened his latent powers into life. Thomas Jefferson was ambassador at the Court of France, and Bulfinch had letters of introduction to him. Jefferson's remarkable knowledge of architectural principles had brought him in contact with the French architect, Clerisseau, and the Scotchman, Robert Adam. Jefferson took a personal interest in Bulfinch and advised him to extend his travels to Italy, where he visited Rome, Florence, and Siena.


View of the Boston State House, from an elevation before the addition of the marble wings in 1914.

The first important commission that came to young Bulfinch after his return to Boston in 1786 was to design the first solid block of residences in New England, the Tontine Crescent, in Franklin Place.

Bulfinch may have seen a design for one of these crescents by the Adam brothers, who taught him his sense of proportion, but none had yet been built when Bulfinch visited England. His handling of the difficult problem was masterly. His plan for the sixteen three-story brick houses attained uniformity without tiresome repetitions. The entrances were grouped by twos, the end groups advanced six feet beyond the others, and adorned by pilasters. The oval in front had a grass plot in the centre, with a classic urn in memory of Franklin, who had recently died.

Bulfinch also designed a new form of detached mansion on Beacon Hill, where residences were springing up on the new streets laid out on the sunny slope of Copley's Pasture.

One of the finest of these authentic Bulfinch houses is No. 85 Mt. Vernon Street, owned by Mr. Richard Sears. Gray paint conceals the soft tone of the hand-made bricks, laid in Flemish bond, to break joints neatly and give variety to the surface. The string course, a band of freestone running across the house above the first story, which effectively holds together the sills and entablatures of the same material, is a favorite device with Bulfinch. A charming elegance is afforded the square walls by the shallow recesses of brick within which are set the windows of the first story. Pilasters rise from the second story to the balustraded roof.

Bulfinch frequently relieved the square mass of Georgian tradition by a bow on the ground story, making place for an elliptical dining-room, as in the Governor Gore mansion still standing in Waltham, Massachusetts. His later city houses gained light and distinction by a double bow or swell front.

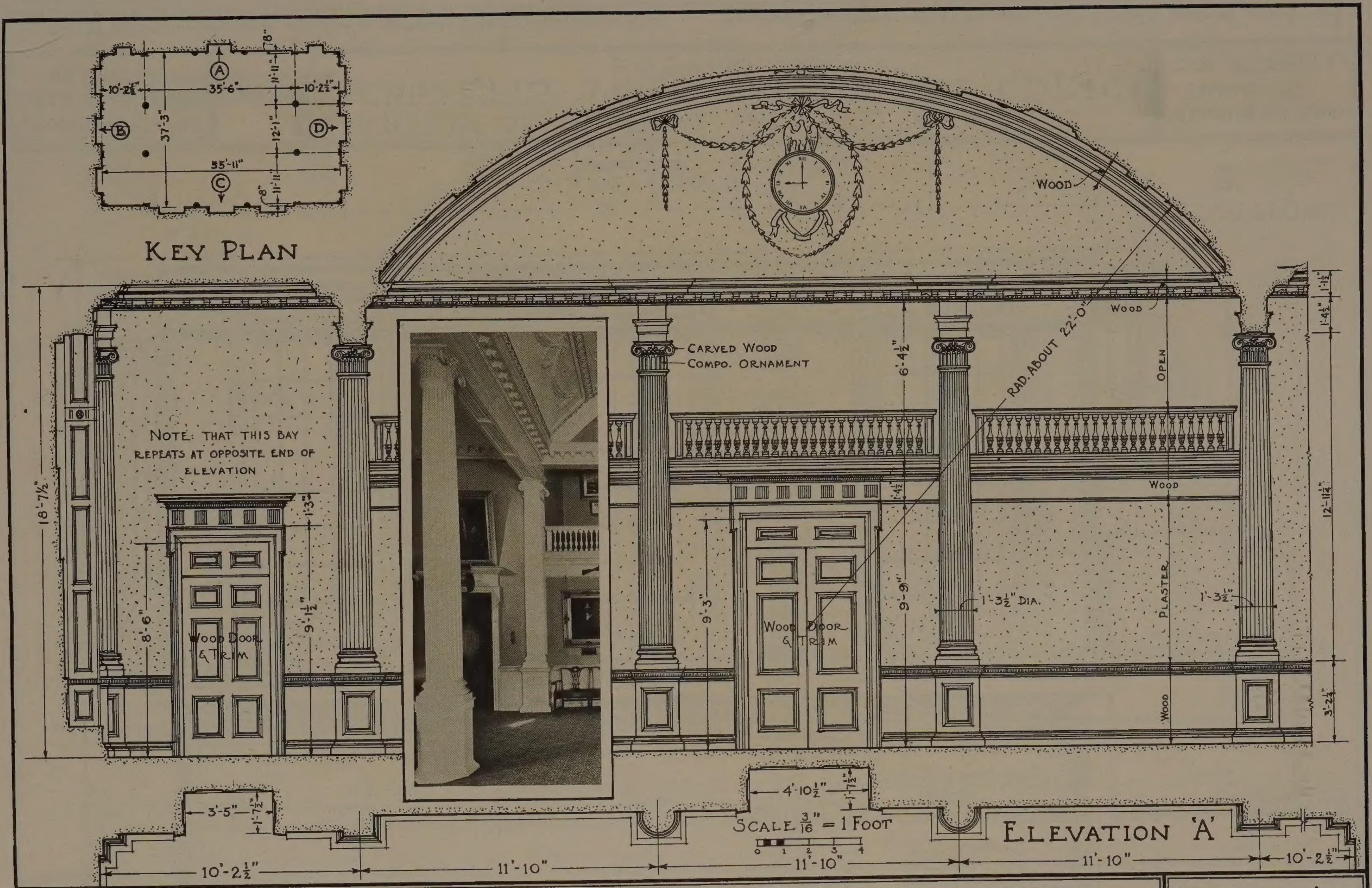
As architect of public buildings from the Capitol of Augusta, Maine, to that of Washington, no American, save Stanford White, has ever surpassed Bulfinch. The Boston State House, with its gilded dome, was built in 1795, when the architect was only thirty-two. This early work was unquestionably his best. Bulfinch brought all his marked originality and skill to the task of adapting the classic style, at that period the basis of English architecture, to the new conditions brought about by the setting up here of a federal government. It is more notable because there was no model anywhere of the kind of legislative hall he wished to build.

Where will you find the twin to the delightful arcaded porch rising to the second story, with the graceful arches below and the stately colonnade with the double columns at the ends, completed by a balustrade?

It was a comparatively small building, having a frontage of only 172 feet, and a depth of 65, and, including the dome, a height of 155 feet.

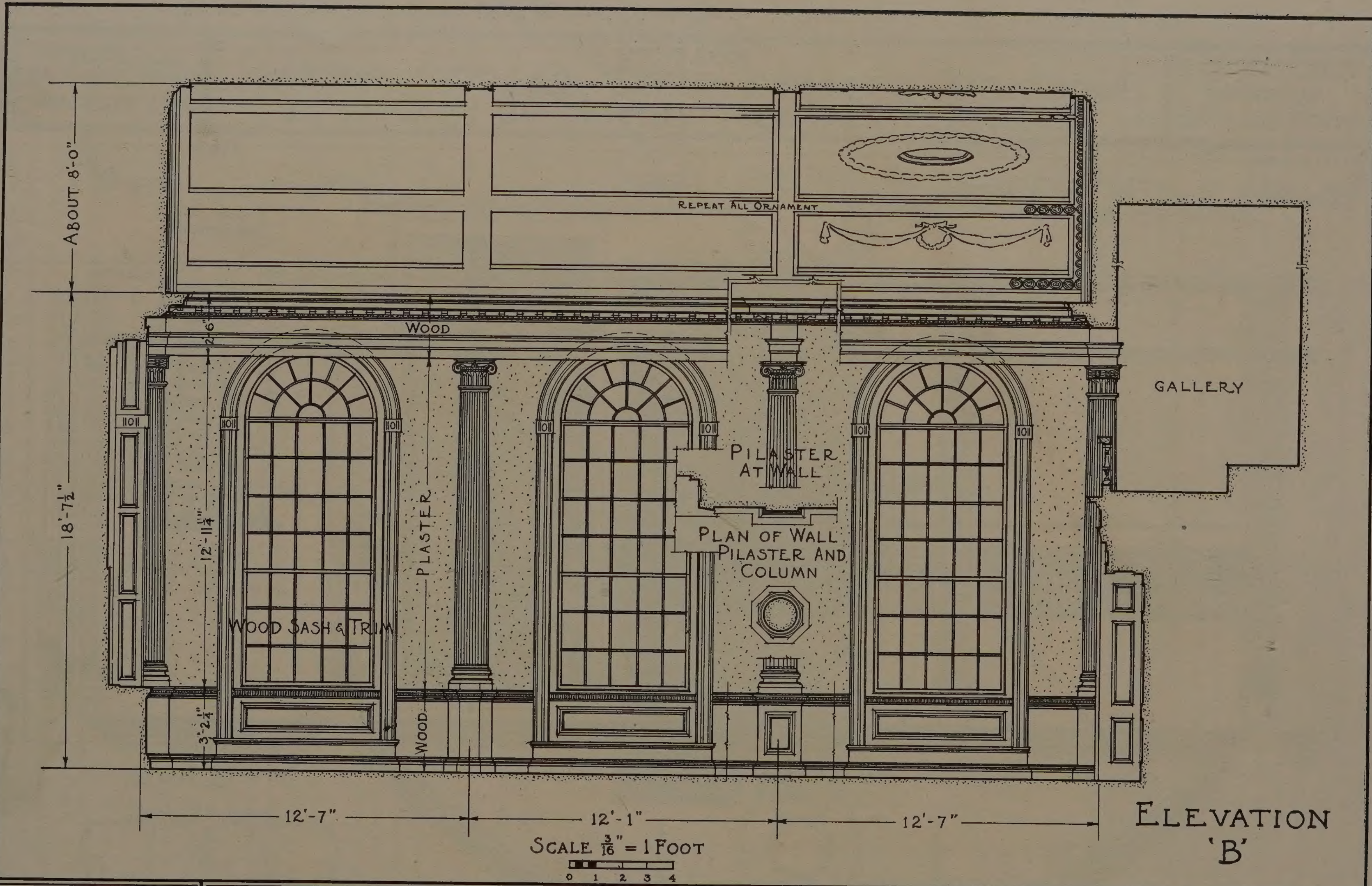
There is no richness of material, brick, and wood serving all the purposes of construction and decoration. Its disposition of parts, however, is so happy, its treatment is so broad and simple, its sparing ornament is so correct in itself and so judiciously used, that it produces an effect of largeness of scale, combined in an unusual degree with grace and dignity—a sort of Adam architecture of noblest type. Though cumbered through the years by "additions and extensions," the finest feature of the State House, the famous Bulfinch front, has been preserved.

President Monroe visited Boston in 1817, and was entertained in the Doric hall of the State House. Greatly impressed with the work of Bulfinch, the following year he invited him to Washington, and appointed him architect-in-chief to rebuild the two wings of the Capitol which had been burned by the British in 1814. Bulfinch spent twelve years on the work, and the Capitol remained as he left it till 1851.



Completed 1798 Chas·Bulfinch Architect	Elevation of Original Senate Chamber Massachusetts State Capitol Building Boston	Measured and Drawn by G·R·Mitchell

For design and proportion, decoration and detail, the executive chambers on the third floor represent the choicest of their kind in this country.



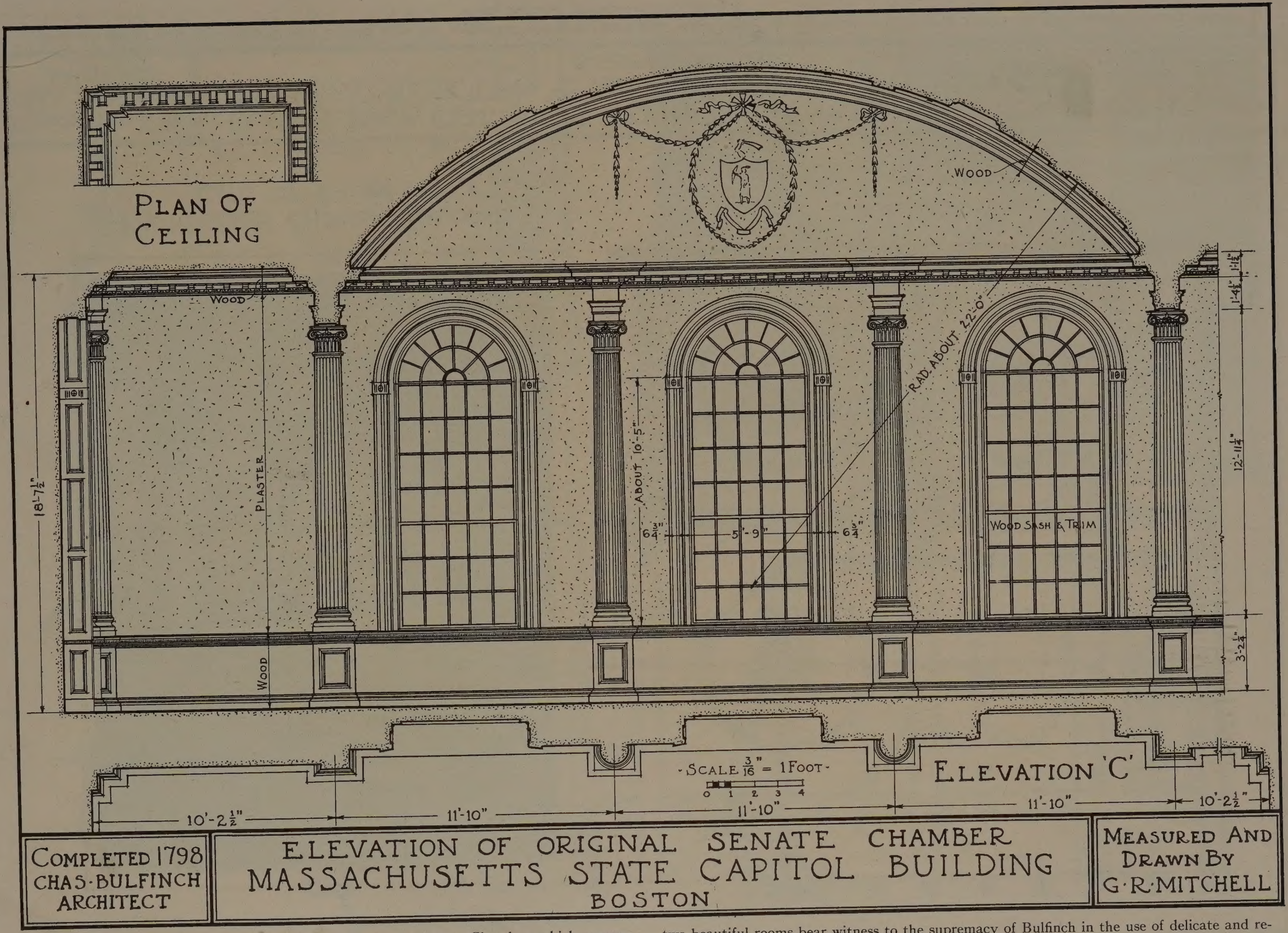
COMPLETED 1798
CHAS · BULFINCH
ARCHITECT

ELEVATION OF ORIGINAL SENATE CHAMBER
MASSACHUSETTS STATE CAPITOL BUILDING
BOSTON

MEASURED AND
DRAWN BY
G·R·MITCHELL

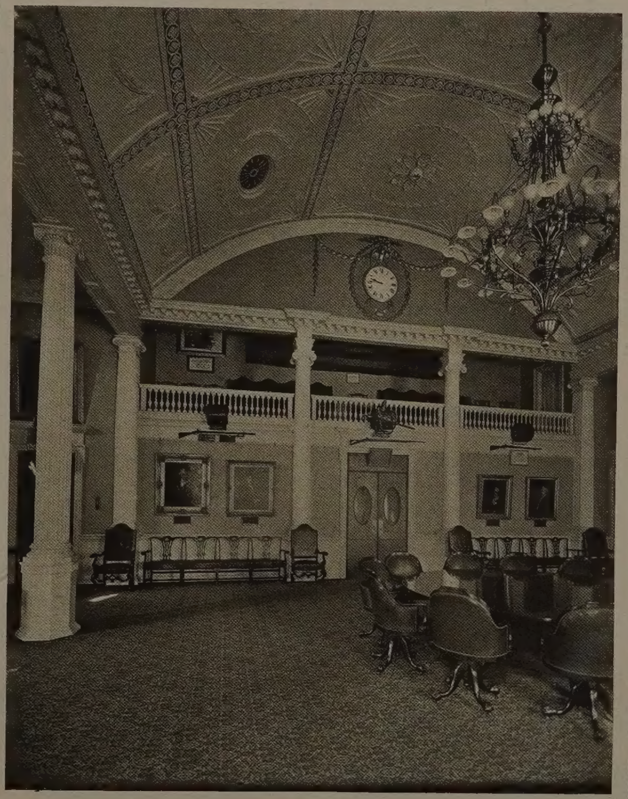
The old Hall of Representatives, now used as the Senate Chamber, occupies the entire central portion of the Bulfinch building, its lower windows opening upon the main balcony behind the Corinthian columns.

It is a really magnificent room, 55 feet square, richly finished in wood and painted white. The domed ceiling, with its exquisite decorations of white against a note of cobalt blue, suggests the rarest work of Wedgwood.

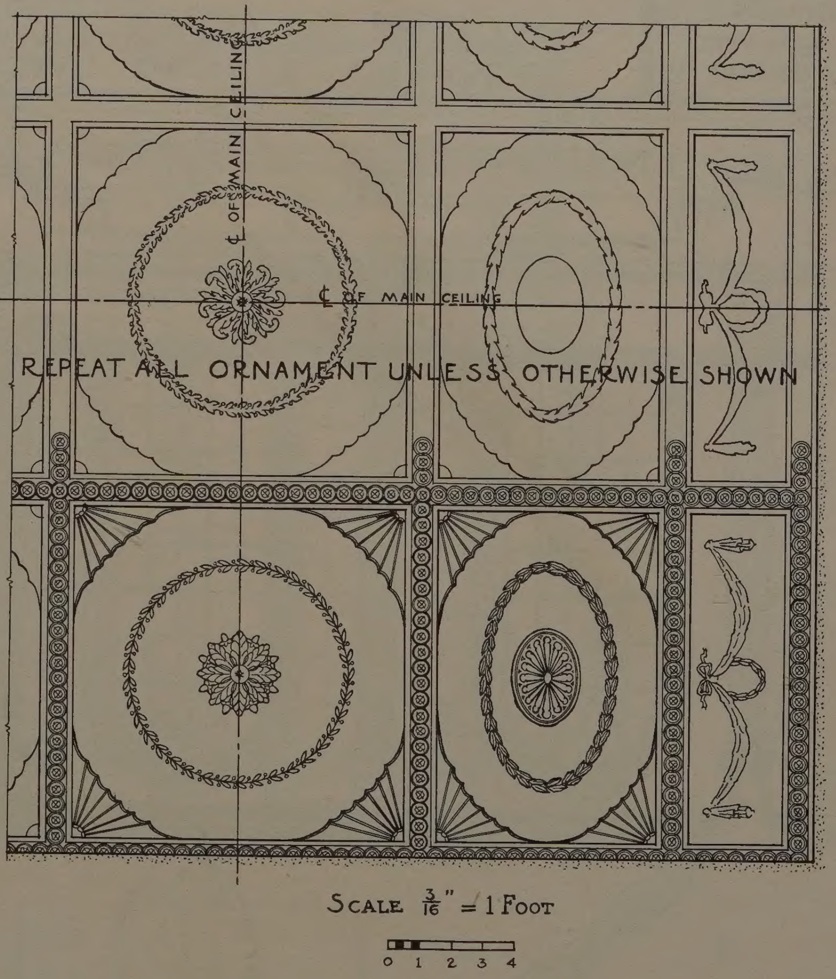


ELEVATION OF ORIGINAL SENATE CHAMBER
MASSACHUSETTS STATE CAPITOL BUILDING
BOSTON

The same decorative scheme is carried out in the old Senate Chamber, which serves as the Senate reception-room, in which Bulfinch completed his plan of a Doric interior. These two beautiful rooms bear witness to the supremacy of Bulfinch in the use of delicate and refined details of decoration.



PHOTOGRAPH SHOWING BALCONY
END OF ROOM



SCALE $\frac{3}{16}$" = 1 FOOT

COMPLETED 1798 CHAS · BULFINCH ARCHITECT	PLAN OF MAIN CEILING OF ORIGINAL SENATE CHAMBER MASSACHUSETTS STATE CAPITOL BUILDING BOSTON	MEASURED AND DRAWN BY G · R · MITCHELL

Bulfinch's perfect taste was combined with a classic vigor and boldness of execution, which alone would justify his reputation as the greatest architect of his time, and in many respects of any period of our architectural history.

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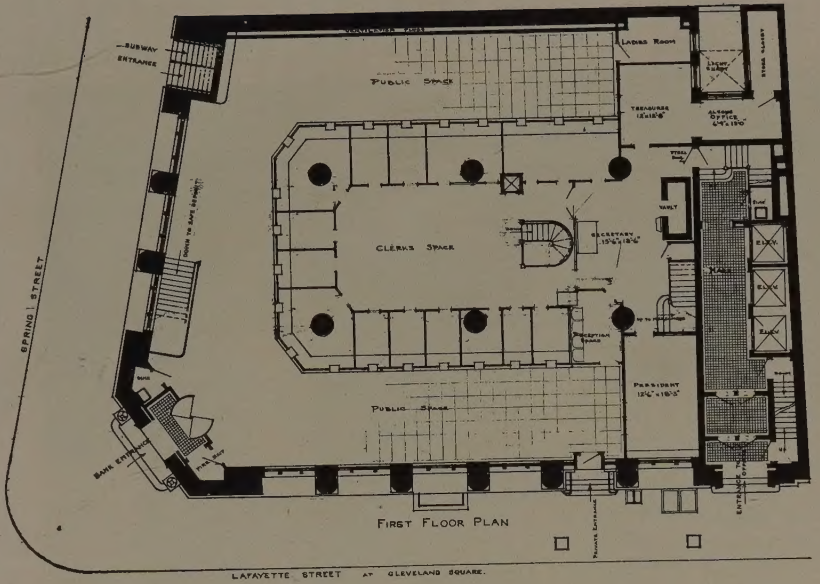
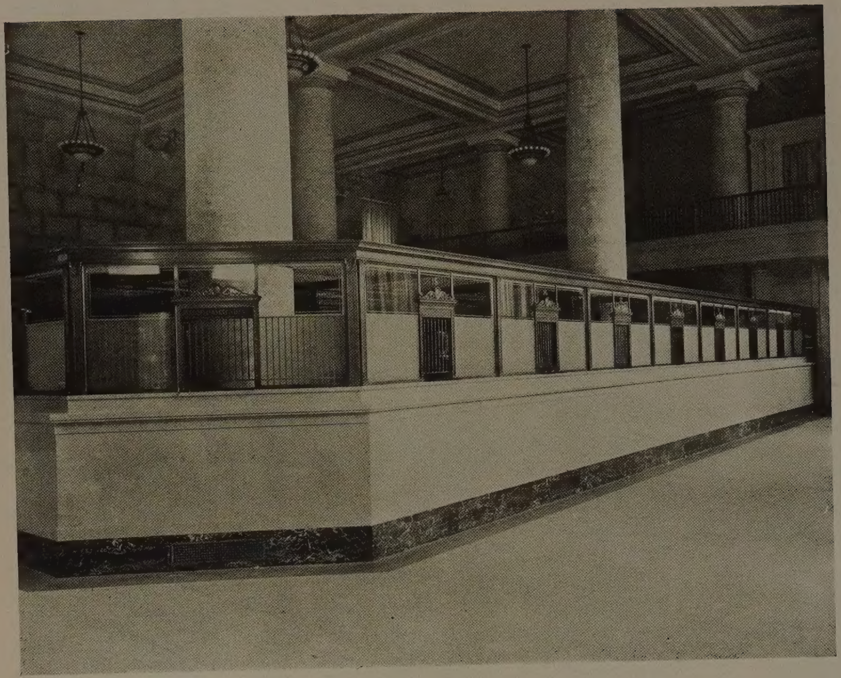
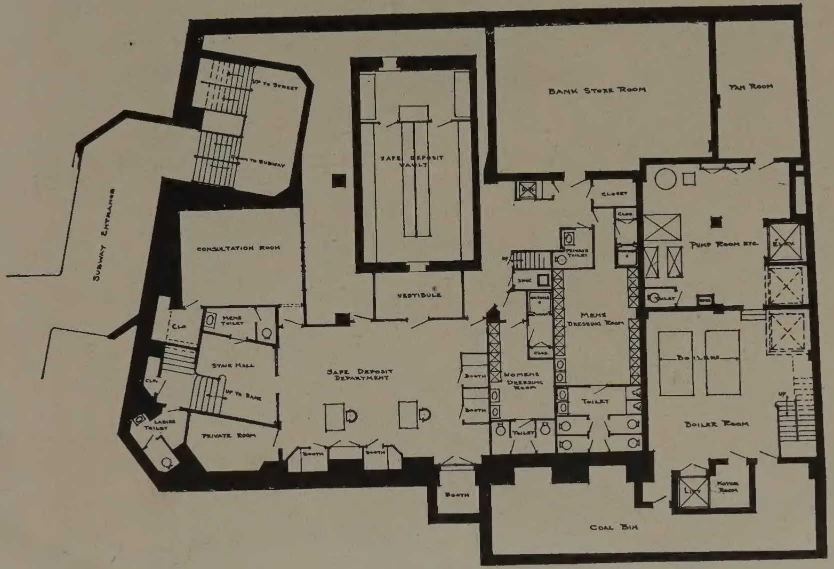


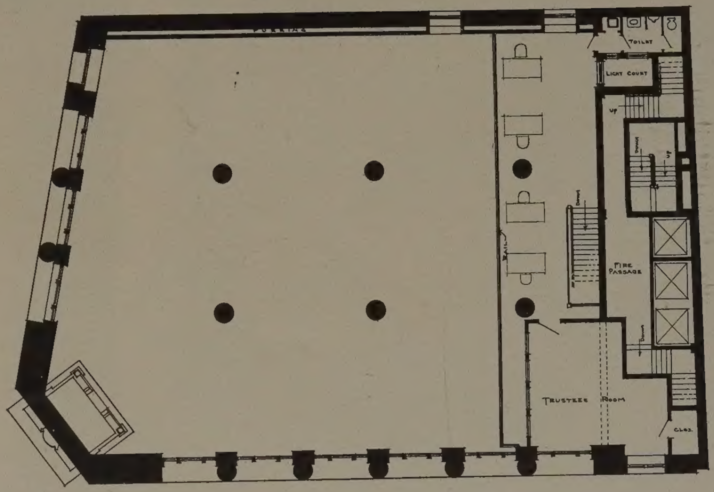
FIRST FLOOR PLAN



BANKING–ROOM.



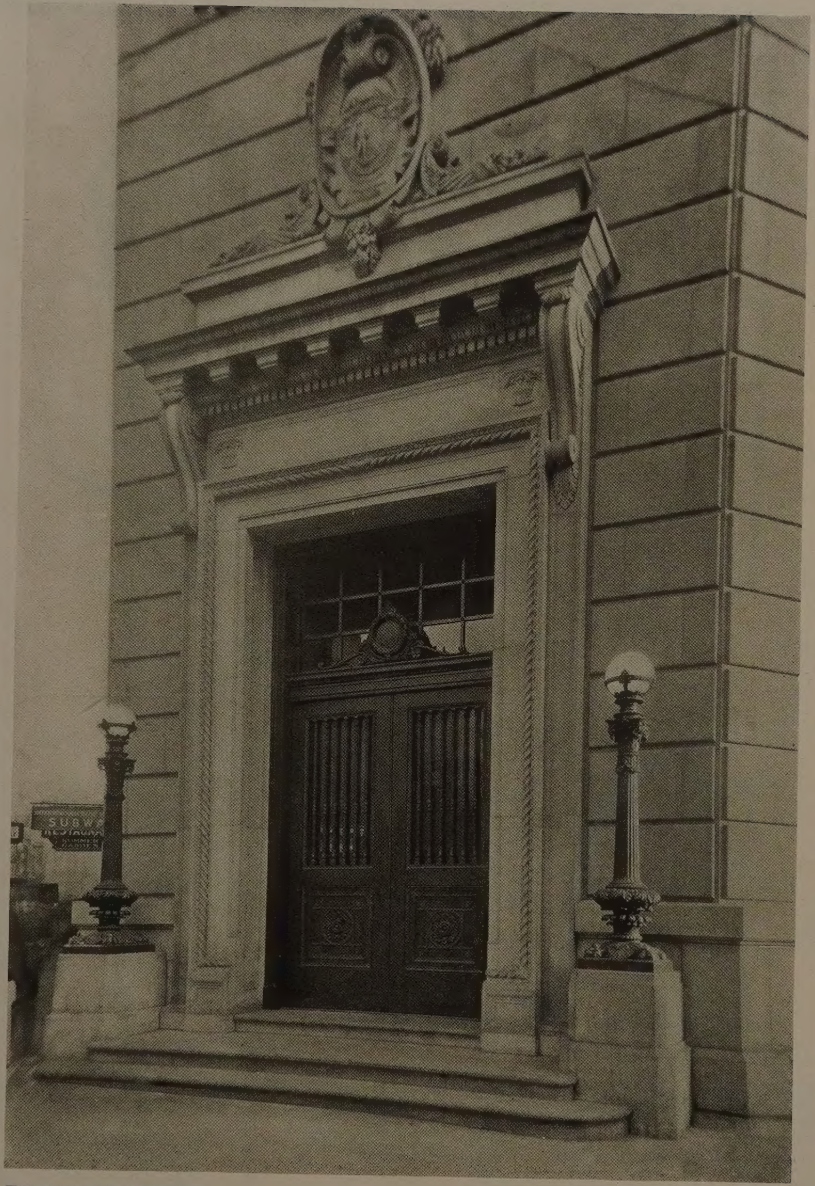
BASEMENT PLAN.



MEZZANINE PLAN

C. P. H. Gilbert, Architect.

ITALIAN SAVINGS BANK, COR. SPRING AND LAFAYETTE STS., NEW YORK.



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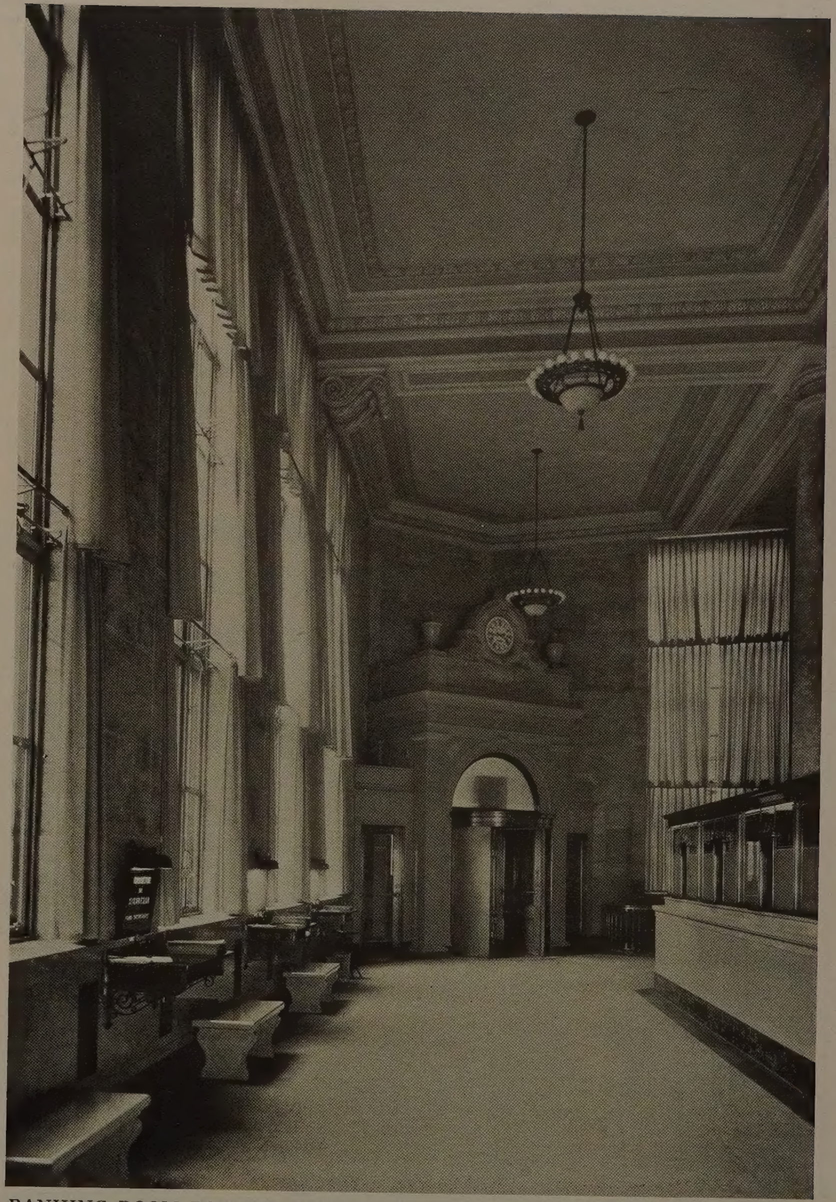

BANKING-ROOM TOWARD ENTRANCE.

C. P. H. Gilbert, Architect.

ITALIAN SAVINGS BANK, COR. SPRING AND LAFAYETTE STS., NEW YORK.

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Editorial and Other Comment

On Being Educated

OF the many problems following the war, one thing that is being insistently discussed is the changed attitude toward the matter of education. There is a surprising amount of frank criticism being written about the work of the colleges, and some of the most illuminating is that from the learned professors themselves. The old methods seem to be under fire, and the net result of four years of more or less intensive study of the regular old-fashioned courses appears to be lacking in those things that prepare men for taking up the real burden of life. There is a lot of nonsense talked about cultural things, and just what is meant by "cultural" apparently needs defining. Is it superrefinement, a sensitive and sympathetic response to the little niceties of conduct, a love of beauty, a generous attitude toward others, a wish to please and be of service rather than to grab everything in sight? If so, such a conception of culture seems out of date in more ways than one. If it leads anywhere it is apt to lead to what we speak of as an "inferiority complex," and there is no place in this modern world for such doctrine.

Being nice may have it's advocates in old-fashioned circles, but the public at large has little use for the modest person, or for the mere theorist regarding human conduct or the ways of men in general. Our universities are beginning to wake up to the fact that education is not to be found in books, but in learning to use what faculties we may possess to some end beyond dreaming of high and mighty deeds. An architect of wide experience in teaching in one of our great architectural schools said recently that the average boy graduated with a head full of ideas about beauty and the history of architecture, and with little real practical preparation for the profession he intended to follow. It required several years of drudgery in offices to make him realize that about half of his education was worth the proverbial thirty cents. Young men just out of college looking for jobs often wonder why it is that an equipment of several modern languages, a superficial acquaintance with the classics, maybe, the ability to indite a passable sonnet to some lady's eyebrow, and the best of social connections do not open the way at once to the chance for showing what they can do. The trouble is that when asked what they want to do or what they think they want to do, they are dumb and look off into space, hunting the definite idea they should have brought with them.

The education of the architect is receiving its due degree of consideration and, maybe, like the colleges in general, the result will be to get down to brass tacks and do away with a lot of encumbrances in the way of higher mathematics, substituting therefor more information about the practical business things that are required nowadays, even in such an idealistic profession as architecture. Teaching should involve a course of sprouts in handling men on the job and in office management.

We have been laboring for years under the impression that education might be found in books, but in these latter days we have learned that life itself is the big book that we should read intensively if we want to be in the parade and not be just a standee on the side-lines.

Takes a big crack to wake some of us and, happily, unless we have been asleep at the switch, we can take the crack and get up smiling at ourselves for being such dummies all the years.

We have books on the psychology of business, books on the psychology of salesmanship—that's the stuff—salesmanship. One of the best sellers of recent years is one of these books that tells you how to size up the other fellow, how to get him to buy whether he wants to or not.

The architect needs to read a lot of this kind of stuff—some should, at least—for these are days when a nice office and a few real antiques, perhaps several framed prints of famous classic temples, have lost much of their pull.

Sadly but truly many men of the old ways have been rudely made aware that "salesmanship" is the real art asset that brings home the bacon. Some of us were taught a bit too much of the idealistic stuff and too little of the facts without which our ideals never develop into more than a feeling of self-conscious and snobbish superiority. The education we all need is the one that helps us to think, and that is about the hardest job that any body of teachers tackles.

In his interesting "Short History of the Building Crafts," Martin S. Briggs, F.R.I.B.A., says these pertinent things: "The architect of to-day must be the master-builder as well as a draftsman. There has been a tendency in some schools of architecture to unduly stress the value of good draftsmanship. The architect should be reminded in student days that his primary function is to *create* good buildings, and that it is only by this means that he becomes an architect."

There is no divorce between architectural design and building construction—as is too often imagined in the schools—and no "eternal triangle" of design, tradition, and construction.

A Chance to Study Setback Architecture in Bulk

NEW YORK architects have been compelled by circumstances to study the setback problem, and they have gone about solving it with some considerable skill here and there; but when all is said and done it is going to take time to make us think that it is a way to beauty. During the past months whole rows of setbacks have gone up on Forty-seventh and Forty-eighth Streets, New York, and to even the man in the street without any least knowledge of architecture they must seem more or less monstrosities. They have the earmarks of hurried construction and hurried design, and in many cases the materials of which they are built show that the "commercial" spirit dominated their inception, and that the poor architects had but to do or die.

The redeeming thing about most of them as we have watched their development has been the marvel of their great steel cages that have towered up in the sky, with a few little figures of men crawling about the beams, putting them together. In this age of steel, the miracle of the modern high building never loses its interest. The absolute accuracy with which these structures are fabricated and brought piecemeal to the site, to be assembled by the fearless chaps who scramble over narrow beams hundreds of feet above ground, the staccato machine-gun rattle of the riveters, the silhouettes of a tangle of beams going aloft with a group of attendant pygmies, the starting of walls half-way up the structure, the system and rapidity with which a great building rises and becomes a commonplace of the street, in spite of much ugliness, continue to have an enduring appeal.

Building is one of the greatest of our industries, and in spite of high labor costs and high cost of materials, there is a fairly feverish impetus to the uprearing of an unending procession of places where men may work and realtors and investors profit.

The Progressive South

ACCORDING to recent building reports an unprecedented and continued development goes on all over the country; and be it noted that the South is especially awake to her opportunities. The great amount of business being done there is a happy augury of the future.

Of course Florida is the boom State, and Miami is out to gather in all the shekels that are floating about without a home down North.

Fourteen cities of Florida had building permits in one month amounting to more than $25,000,000.

Just how far this building activity, and the real-estate speculative market, are going no one dare predict, but that they may easily develop into a situation of danger is not without consideration in the thoughts of careful native investors.

Overvaluation and ballyhoo methods have had their day in the land of sunshine and flowers; that means, in this case, California—we specify for fear of getting in wrong with the Florida grape-fruit industry.

We are pleased to remark that a number of Northern architects have established offices in Florida, and that others have been called in to design important work.

Well-known New York men have, for a number of years, been closely associated with important Florida enterprises, and several show-places of the very rich were designed by them.

There will be more palaces, apartment-houses, etc., etc., to be built, and it might not be a bad investment for some of our architects to make it a point to spend a few weeks in Florida investigating prospects. They can get away from the coal strike, the snow and slush of the Northern winter, and maybe come home with a commission and a better golf score. Think it over. No, we are not interested in selling any Florida real estate, much to our sorrow.

"'Tis a Consummation Devoutly to Be Wished"

WE are sincerely sorry that we did not more carefully consider the possible effects and facts of Mr. Martin's animadversions in his recent article criticising the work of the Allied Architects Association of Los Angeles, and ask some of our friends of that association what they thought of his point of view, *before we published*. Needless to say we have heard from several of our friends in terms that indicate that we were lacking in sufficient knowledge of the real conditions. Contrary to Mr. Martin's opinions we are advised by a prominent and well-known member of the local Institute Chapter whose judgment we value highly, that: "I know that the members of the association have most unselfishly given of their time and services for a considerable number of years in order to rescue the public work (and the public work only) of our communities here from the debased political hands into which it had fallen. Practically all of the most respected and professionally responsible architects of Southern California are members of this Allied Architects Association."

Blindness in Industrial Occupations

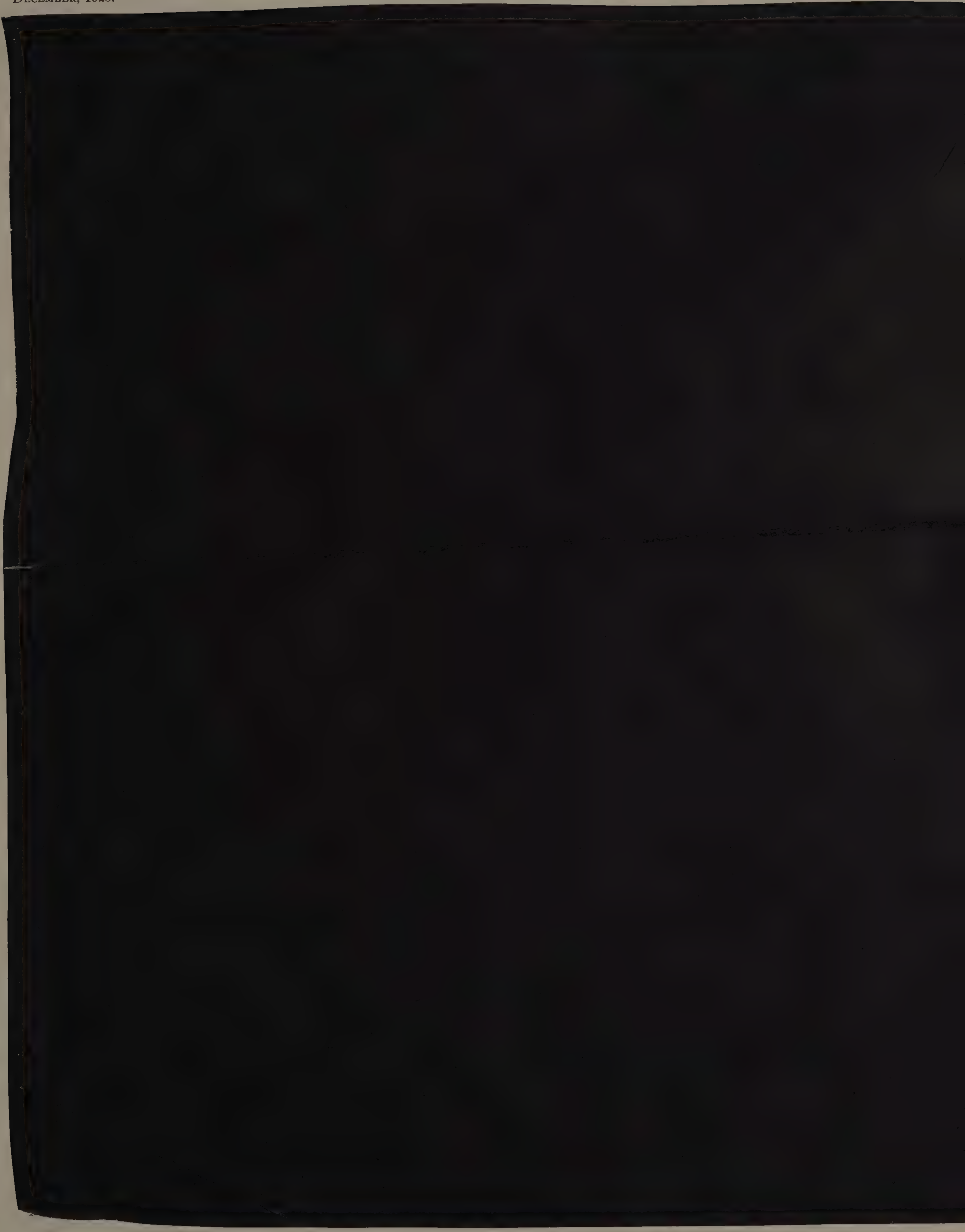
THERE is no such thing as a non-hazardous industry—this is the conclusion of the National Committee for the Prevention of Blindness as indicated in the report of an extensive study of eye hazards in industrial occupations recently completed by the Committee, a summary of which was issued recently by Lewis H. Carris, Managing Director of the Committee.

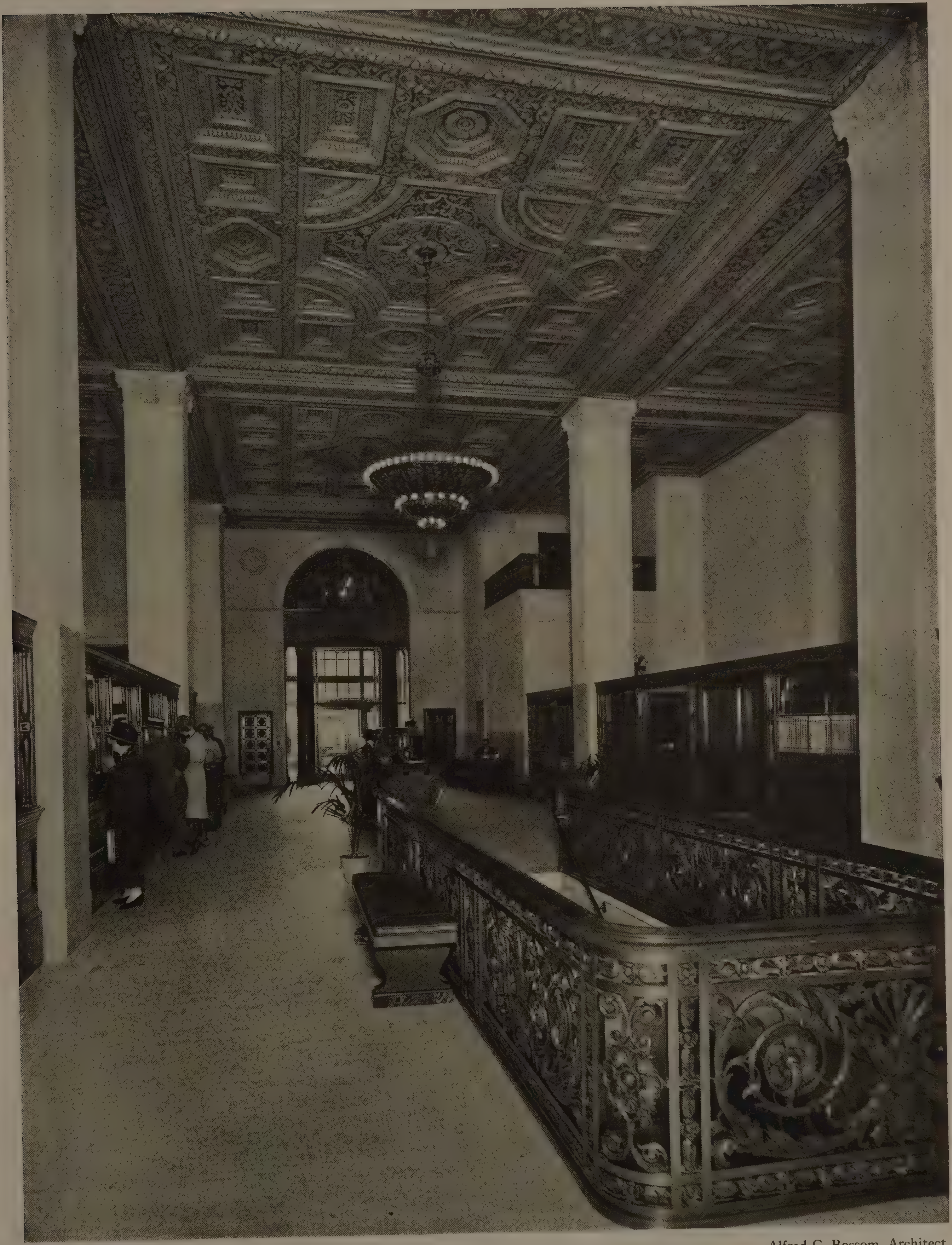
The report declares that "of the 100,000 blind persons in the United States, approximately 15,000 are the industrial blind—persons who have lost their sight in the pursuit of industrial occupations—and there is in addition to the totally blind a much larger number of men, women, and children whose vision has been so impaired by the eye hazards of industry that they are handicapped throughout life. Both of these classes, the industrial blind and the workers whose vision has been seriously impaired by the hazards of other industrial environment, grow larger each year."

There is hardly an industrial occupation in America, according to the National Committee, which does not add each year to the steadily increasing number of the blind and the near-blind. Referring to the experience of just one insurance company which in three and a half years settled claims involving 1,049 cases of permanent disability resulting from eye injuries, the report says: "The loss of eighty-two eyes in the presumably safe occupations of merchandising, farming, and textile manufacture, is further proof of the statement that serious eye accidents are likely to occur wherever men, women, and children are employed. There is no such thing as a really non-hazardous occupation."

The Committee found that although from a national point of view the metal manufacturing industries are the source of the greatest number of serious eye injuries, in Pennsylvania the coal-mining industry ranks first as a cause of industrial blindness. In Wisconsin it was found that hand tools constitute by far the greatest single cause of eye injuries, being responsible for 44 per cent. As an example of the important part that eye injuries play in the whole problem of industrial accidents, the report cites the experience of a large shipbuilding company in whose dispensary 38 per cent of all injuries treated were eye injuries. More than 4,300 eye cases were treated in the dispensary of this one company in one year.

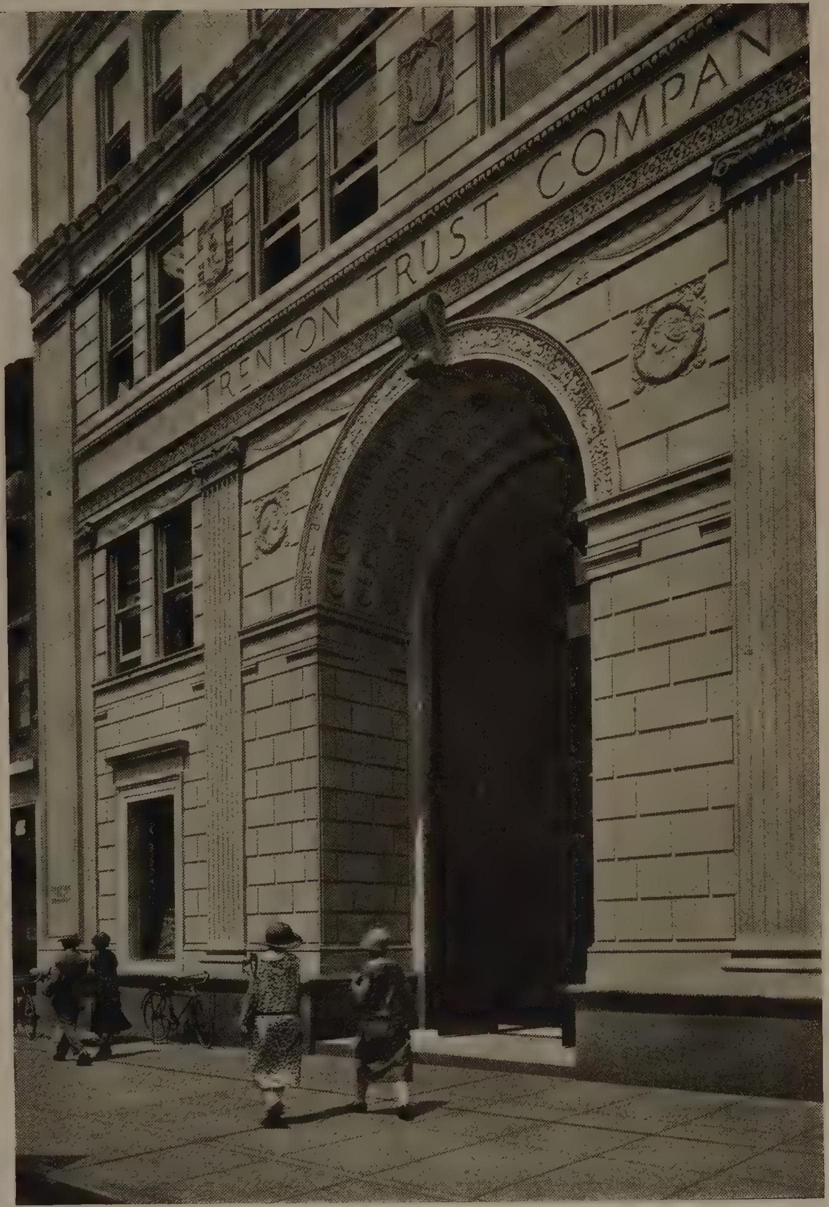
The section of the report dealing with the nature and cause of eye injuries closes with the statement: "Until industry knows exactly where, when, how, and why eye accidents occur, it will not be in a position to do justice to the existing opportunities for the elimination of such accidents, much less to develop new means of prevention. The keeping of detailed and accurate records of the nature, causes, and costs of eye injuries on the standard basis developed by the International Association of Industrial Accident Boards and Commissions is, therefore, recommended as the first step in any campaign for the prevention of eye accidents in the individual industrial plant, or in an entire industry."





BANKING–ROOM, TRENTON TRUST COMPANY, TRENTON, N. J.

Alfred C. Bossom, Architect.



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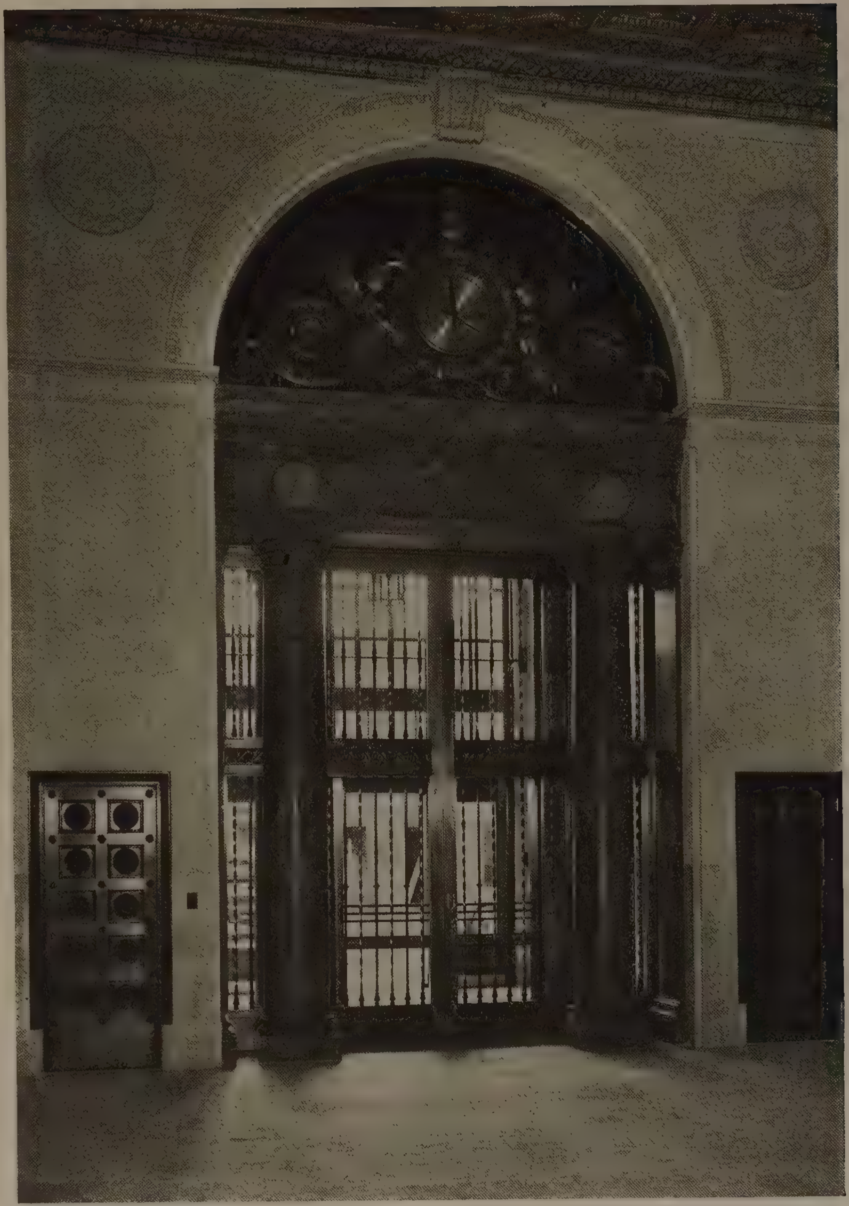
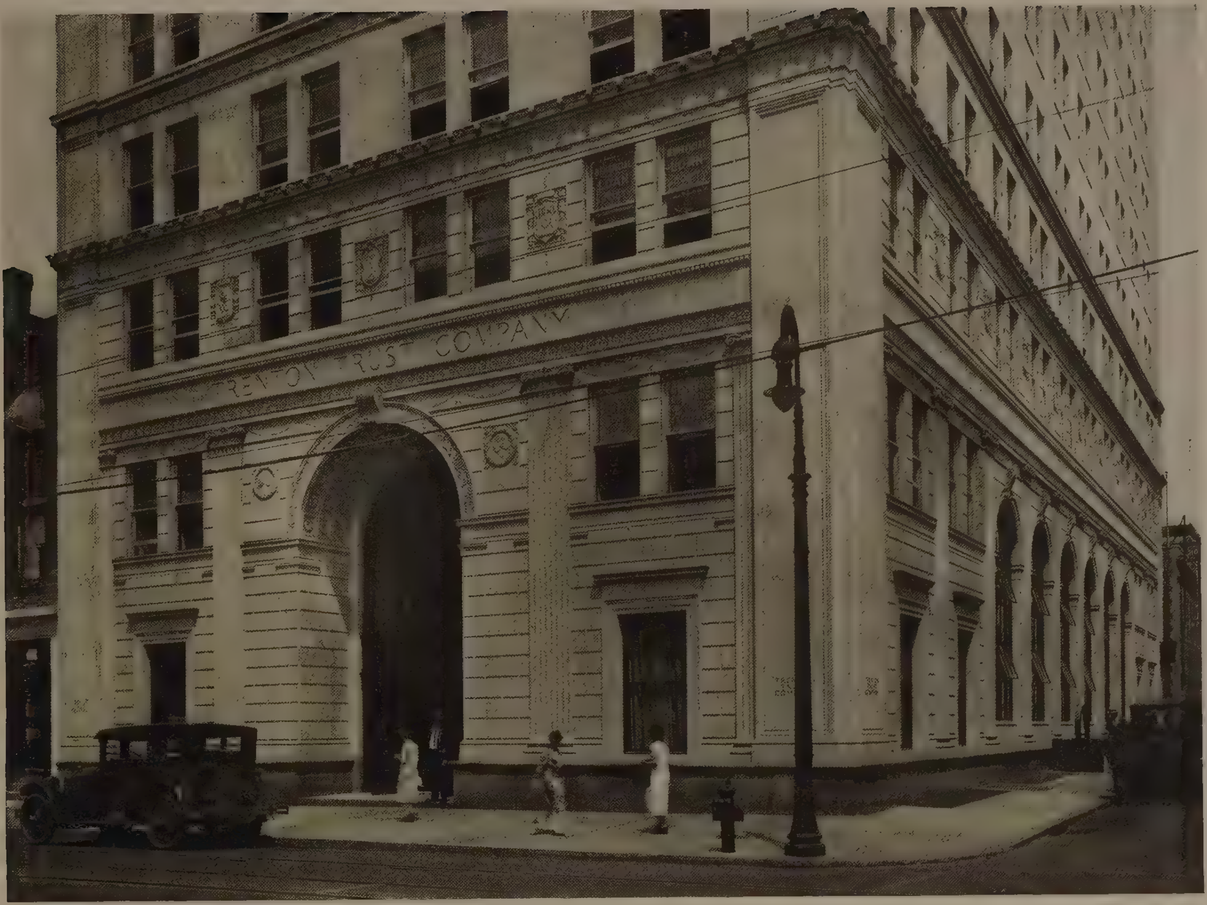


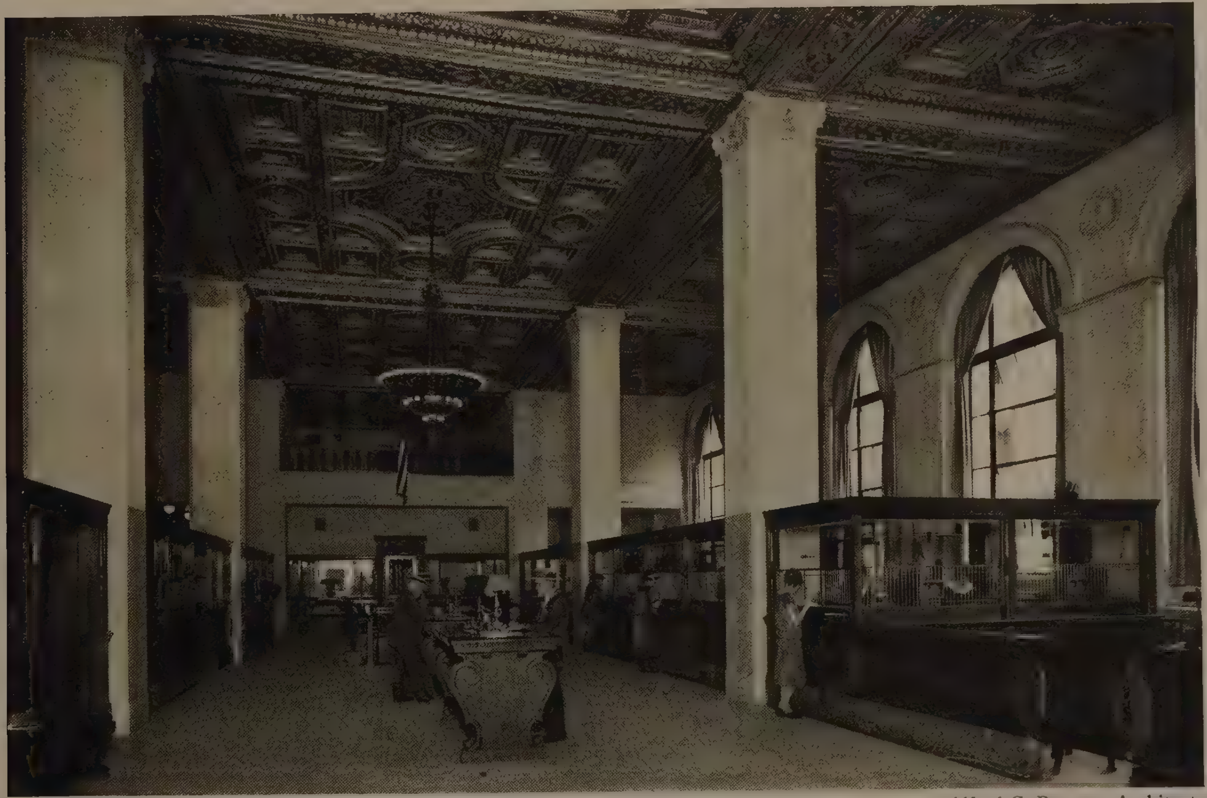
DOORWAY TO LOBBY.

Alfred C. Bossom, Architect.

TRENTON TRUST COMPANY, TRENTON, N. J.



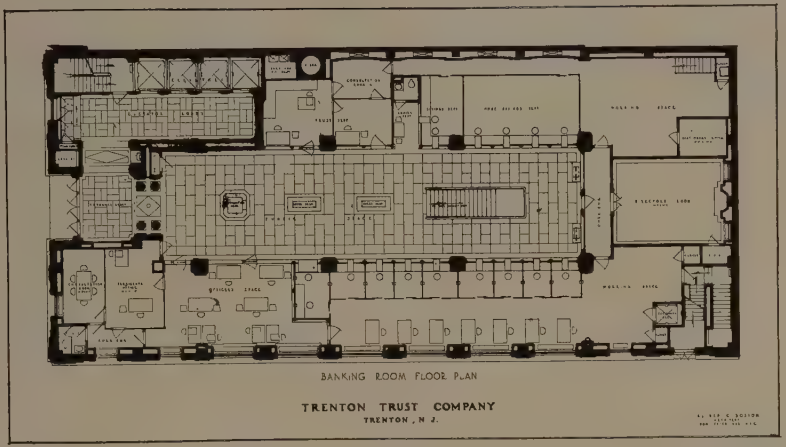
DETAIL, LOWER STORIES.

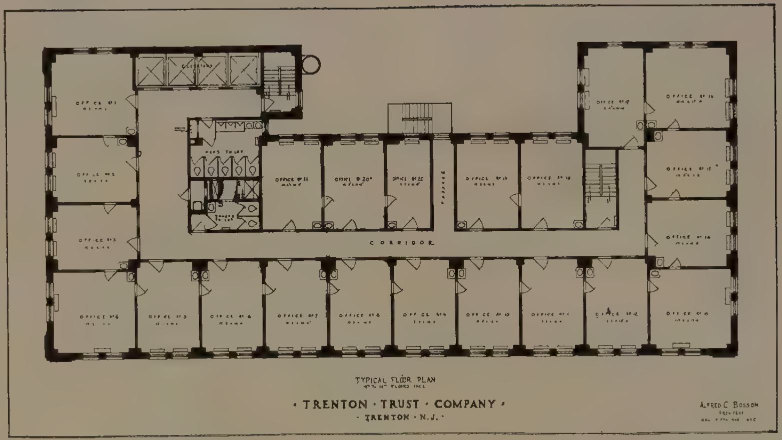


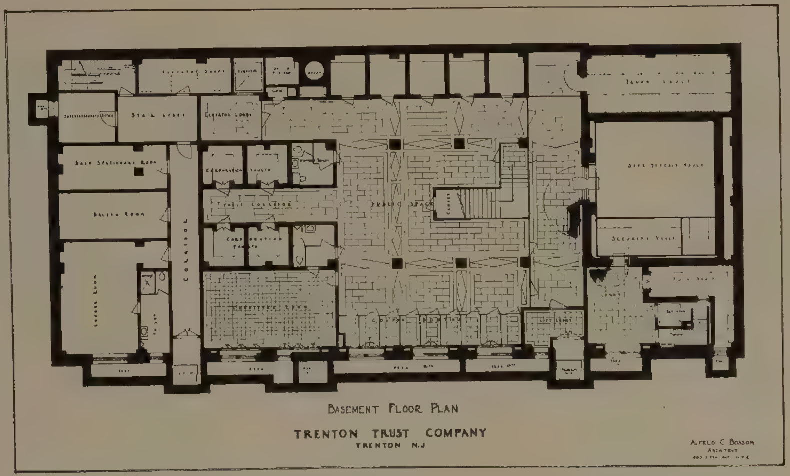
BANKING–ROOM, TOWARD DIRECTORS' ROOM.

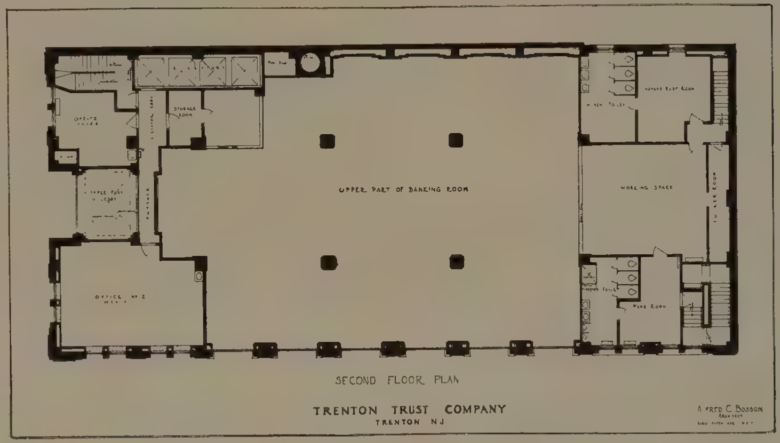
Alfred C. Bossom, Architect.

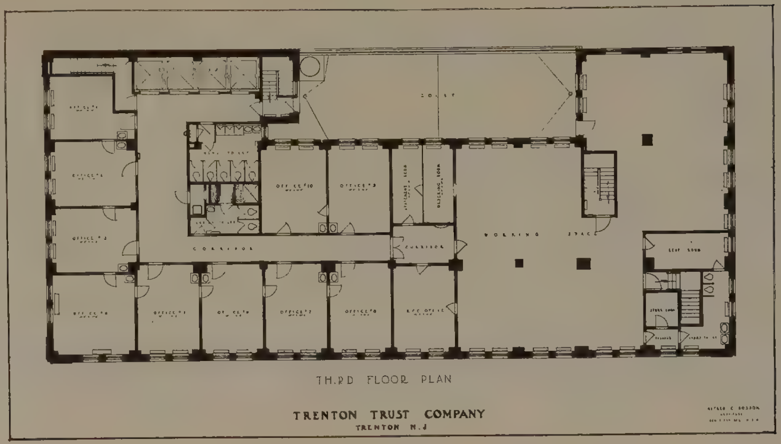
TRENTON TRUST COMPANY, TRENTON, N. J.



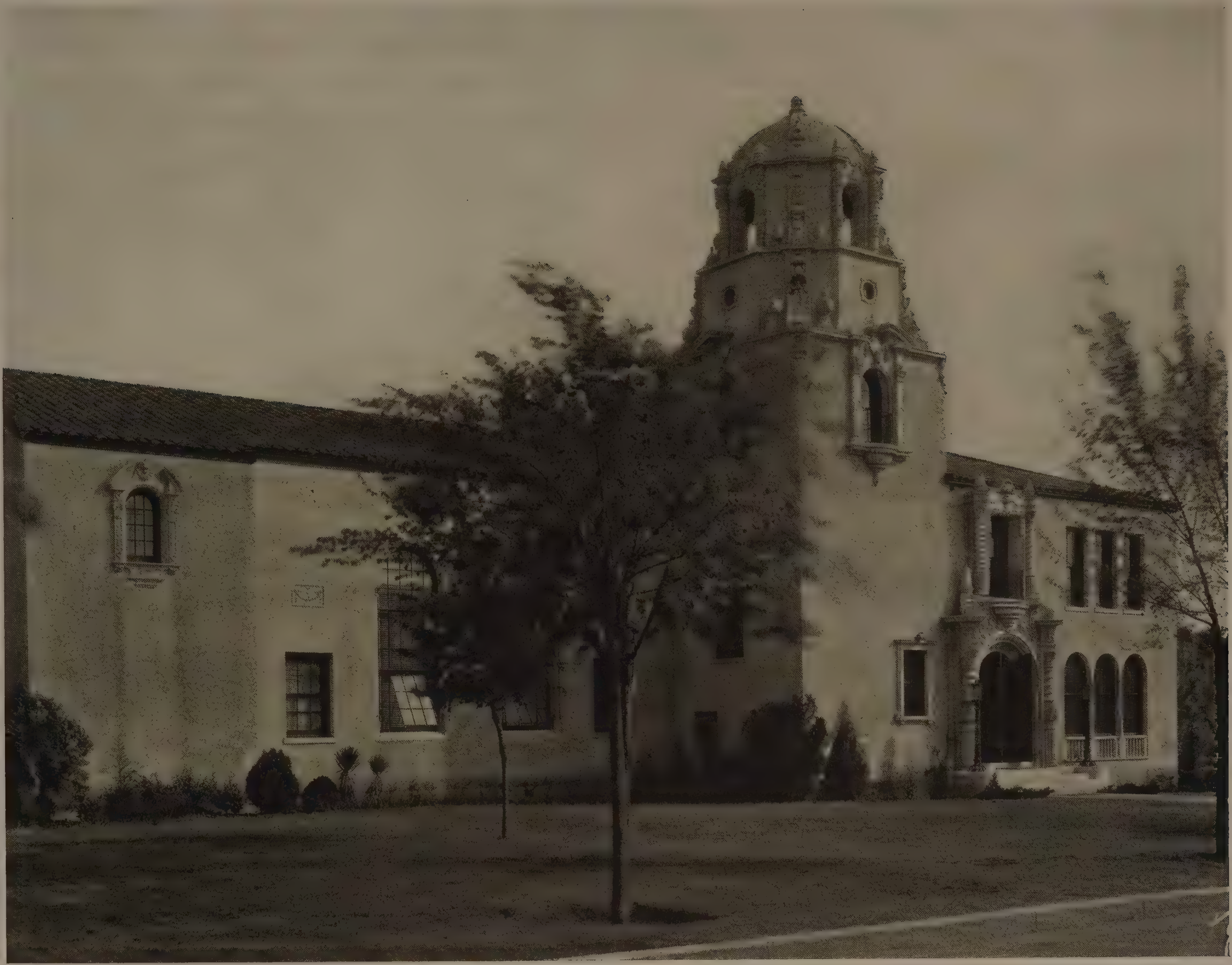






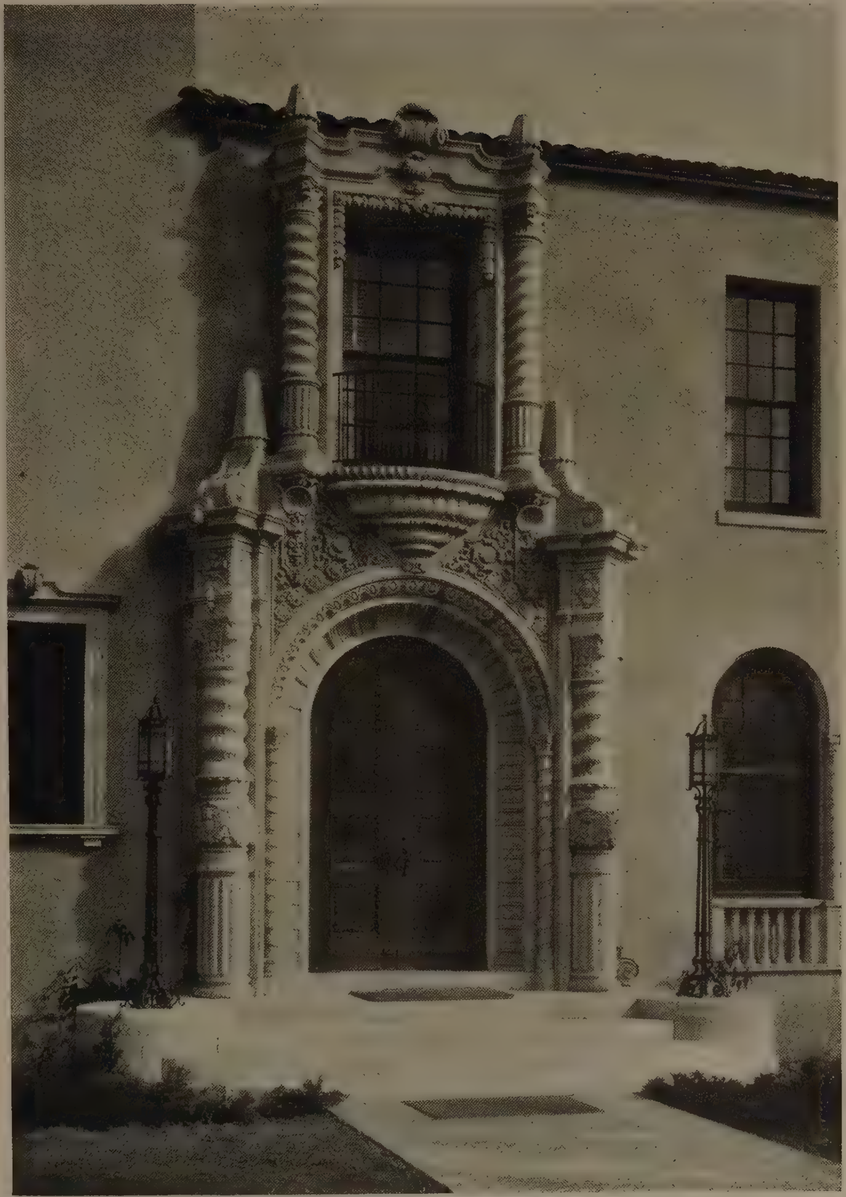


THE TRENTON TRUST COMPANY, TRENTON, N. J.
Alfred C. Bossom, Architect.

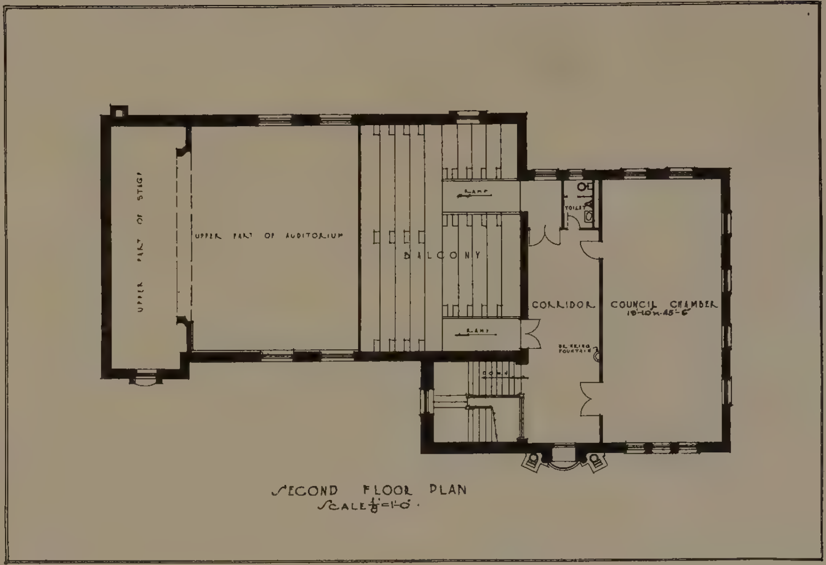


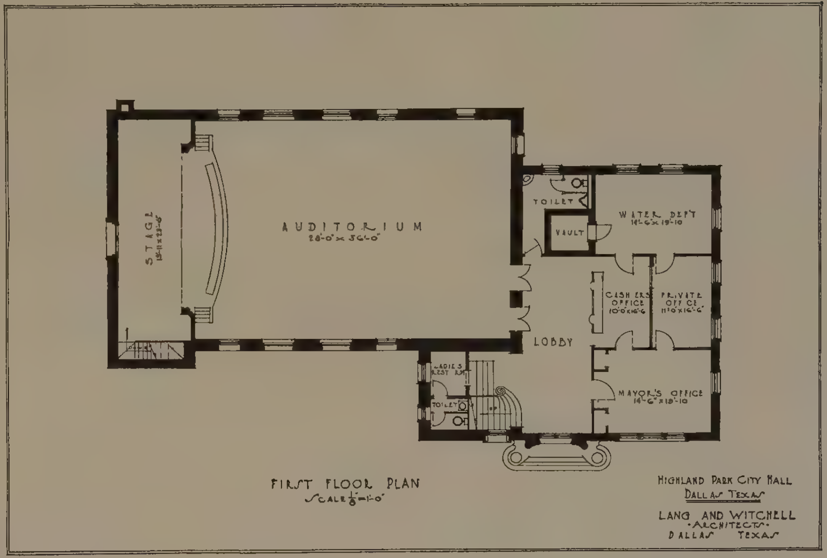
HIGHLAND PARK CITY HALL, DALLAS, TEXAS.

Lang & Witchell, Architects.

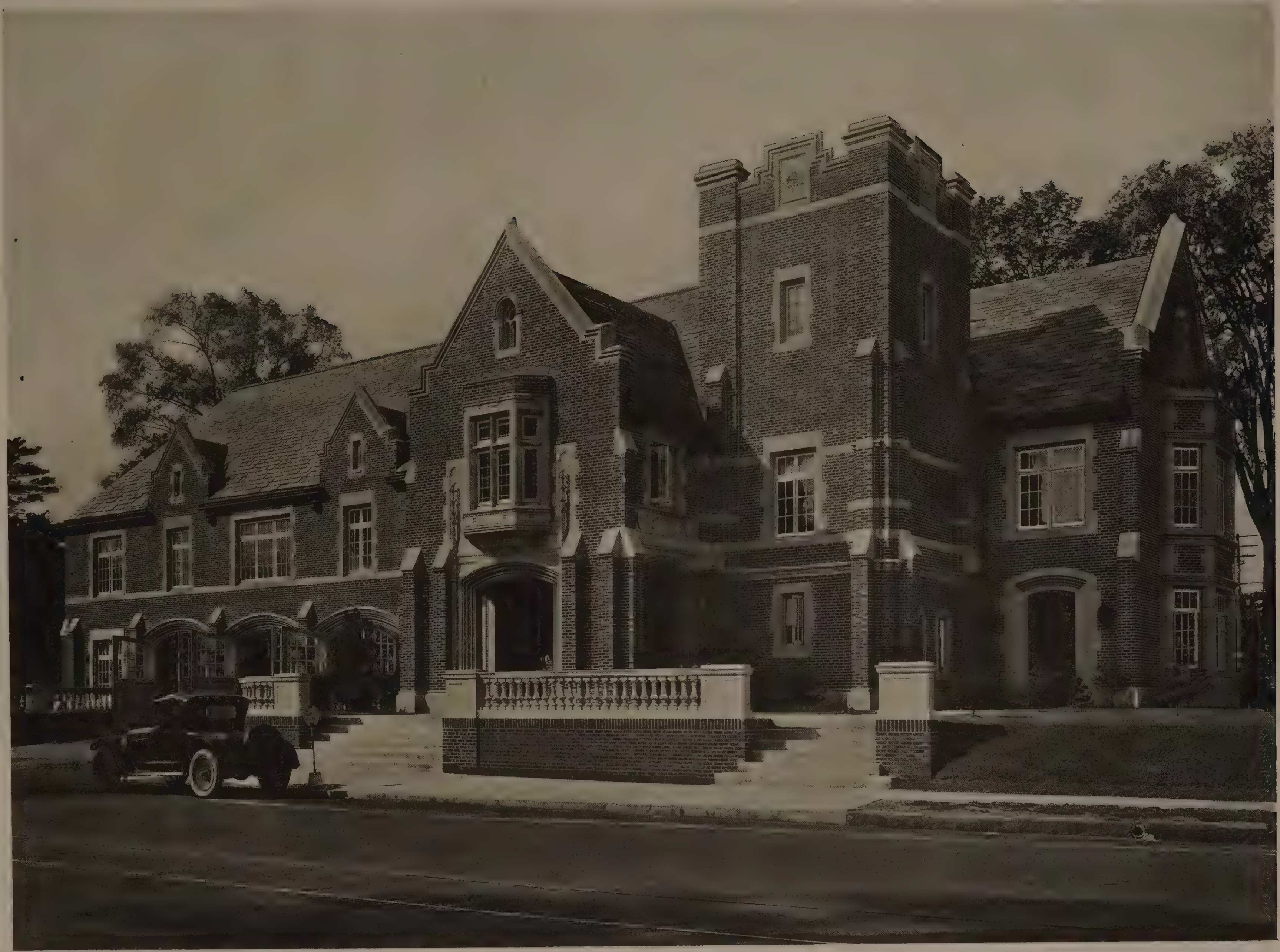


ENTRANCE DETAIL, HIGHLAND PARK CITY HALL, DALLAS, TEXAS.



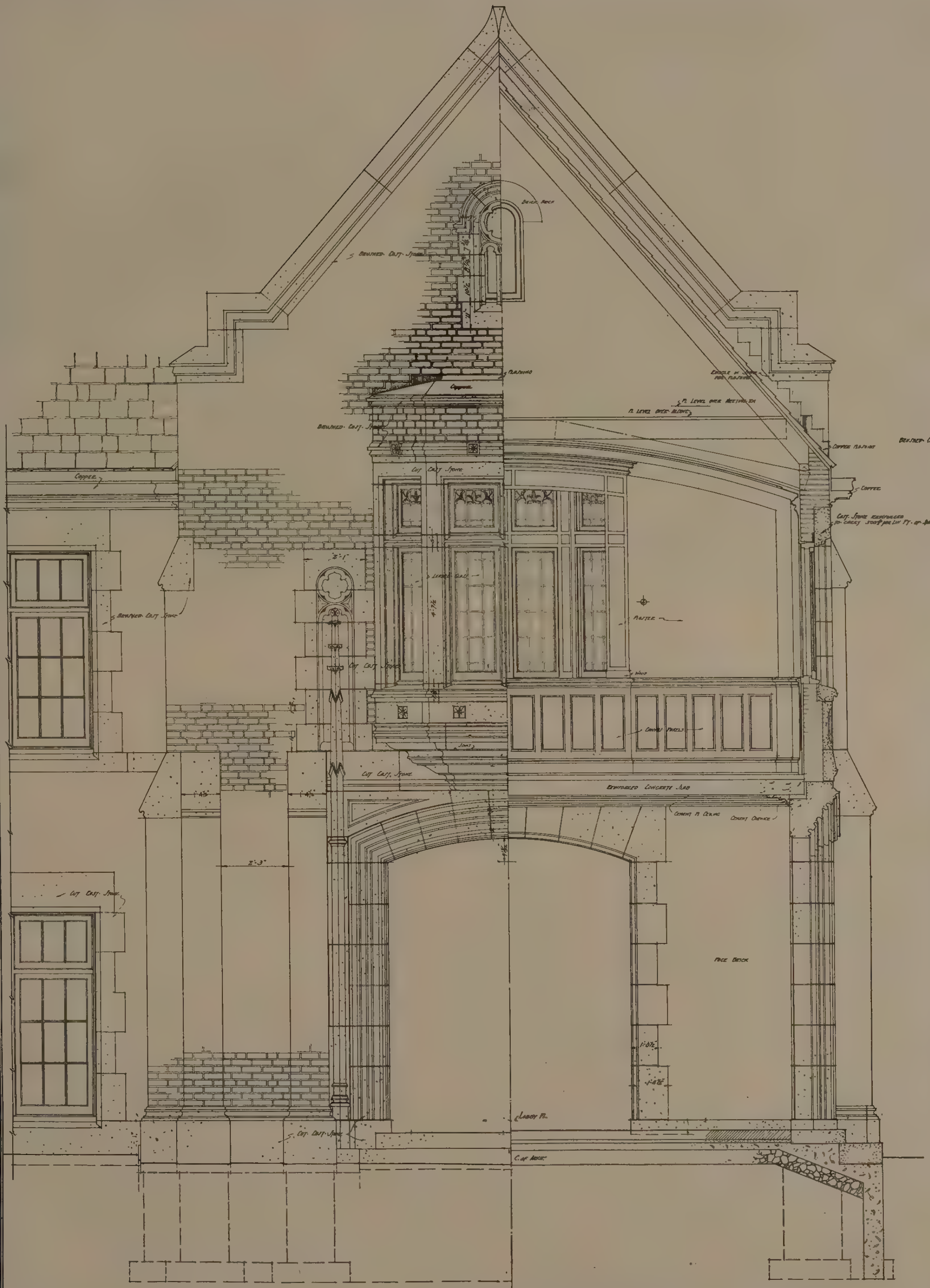


Lang & Witchell, Architects.



MUNICIPAL BUILDING, LARCHMONT, N. Y.

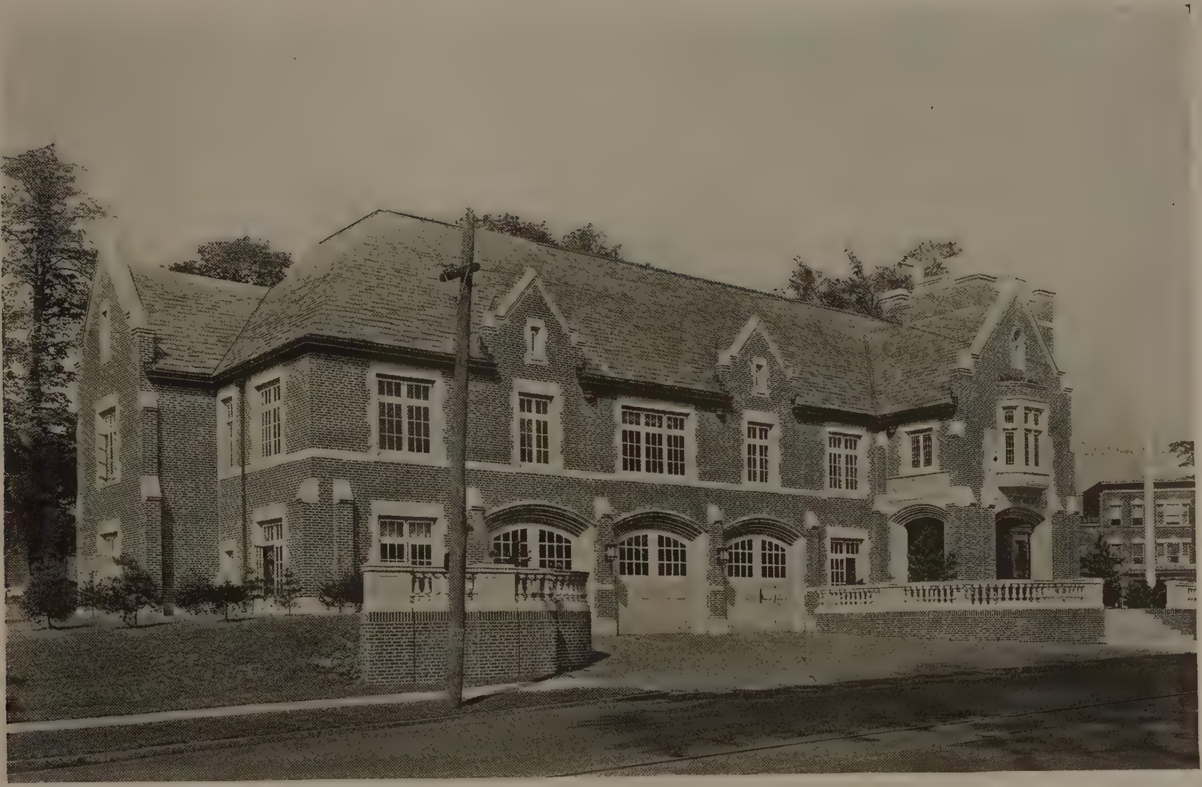
Frank A. Moore, Architect.



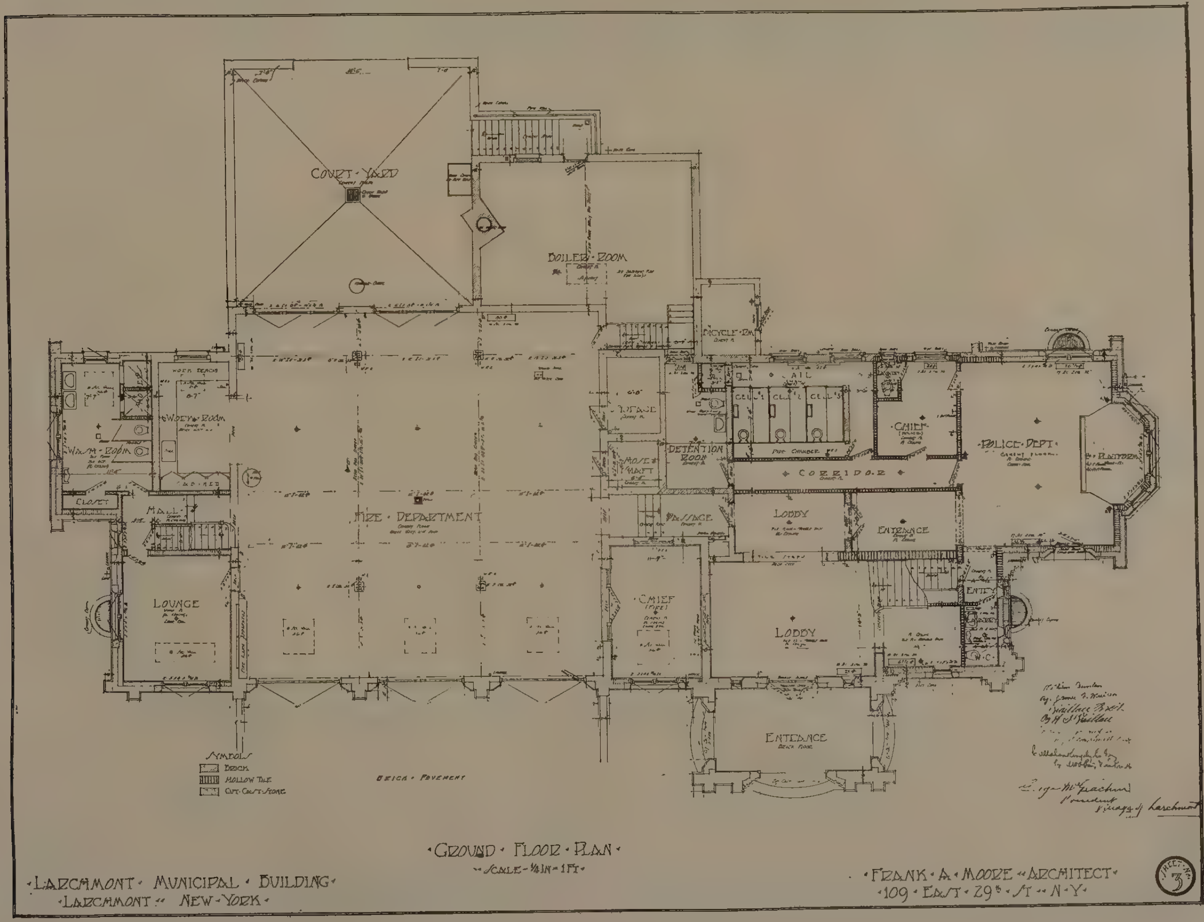
·THREE·QUARTER·INCH·SCALE·DETAILS·
·MAIN·ENTRANCE ~ ORIEL ~ GABLE ~ ALCOVE·

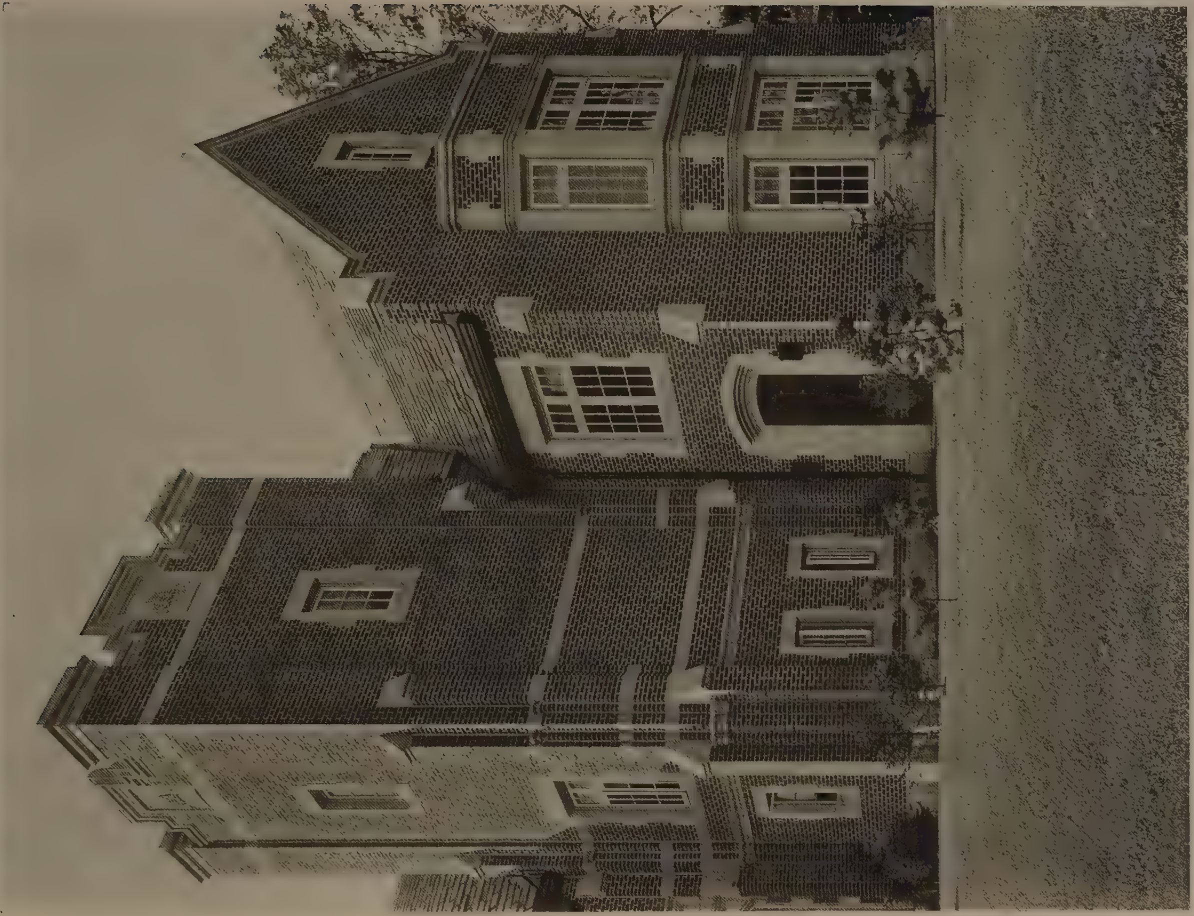
·LARCHMONT·MUNICIPAL·BUILDING·
·LARCHMONT·NEW·YORK·

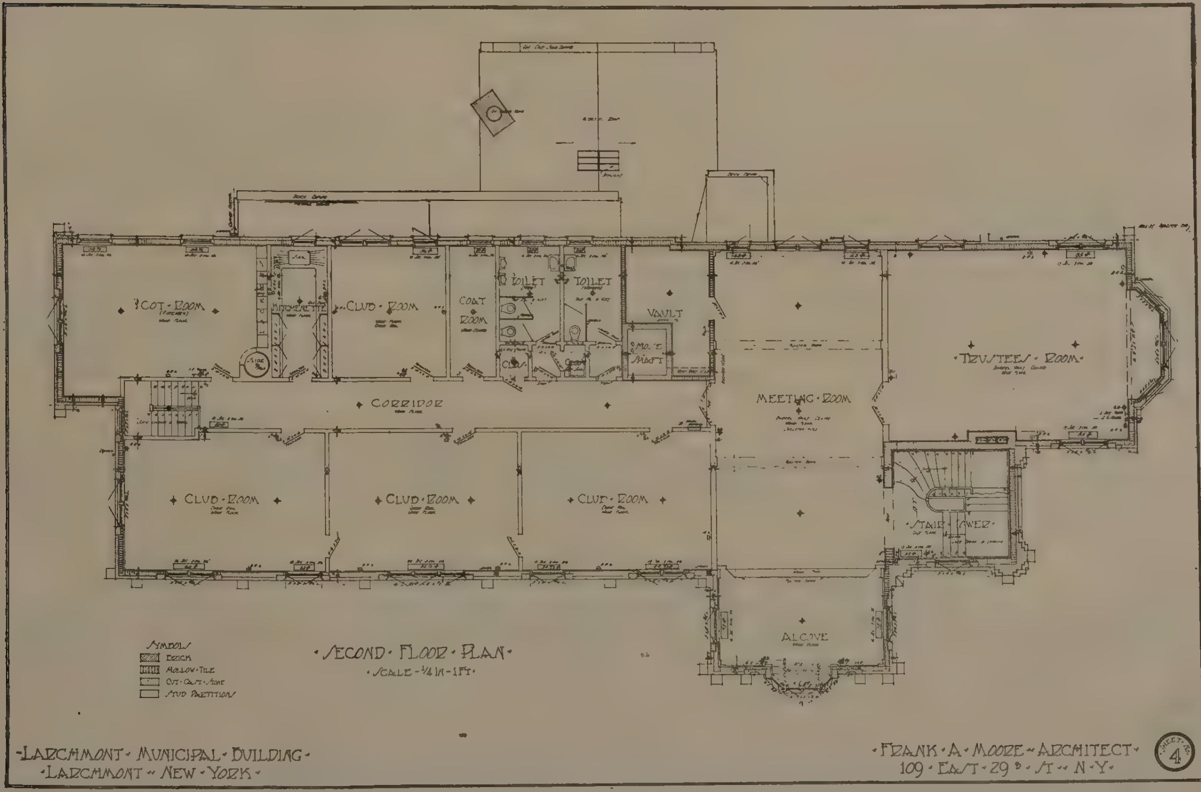
Frank A. Moore, Architect.



FIRE DEPARTMENT HEADQUARTERS.

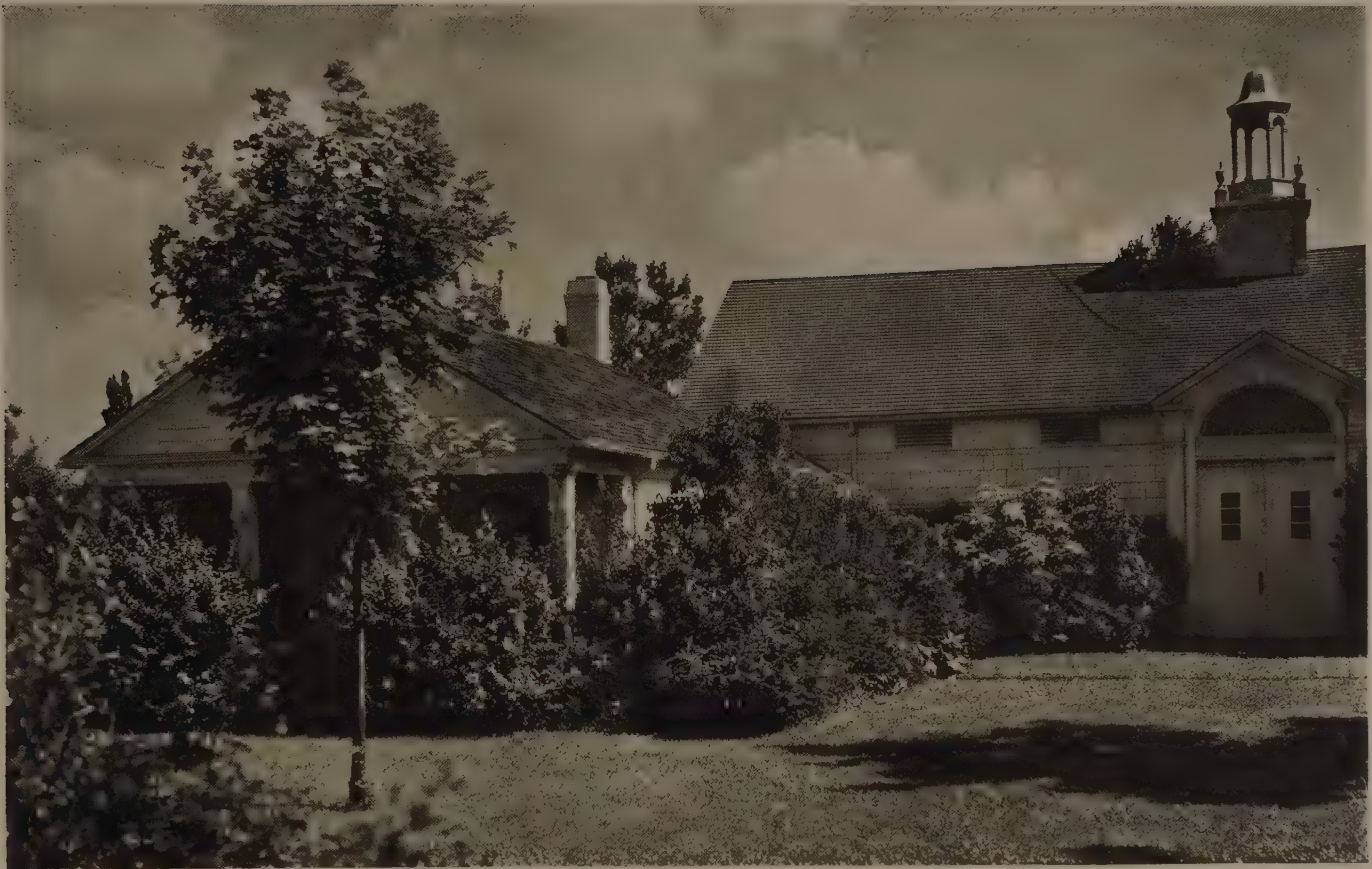




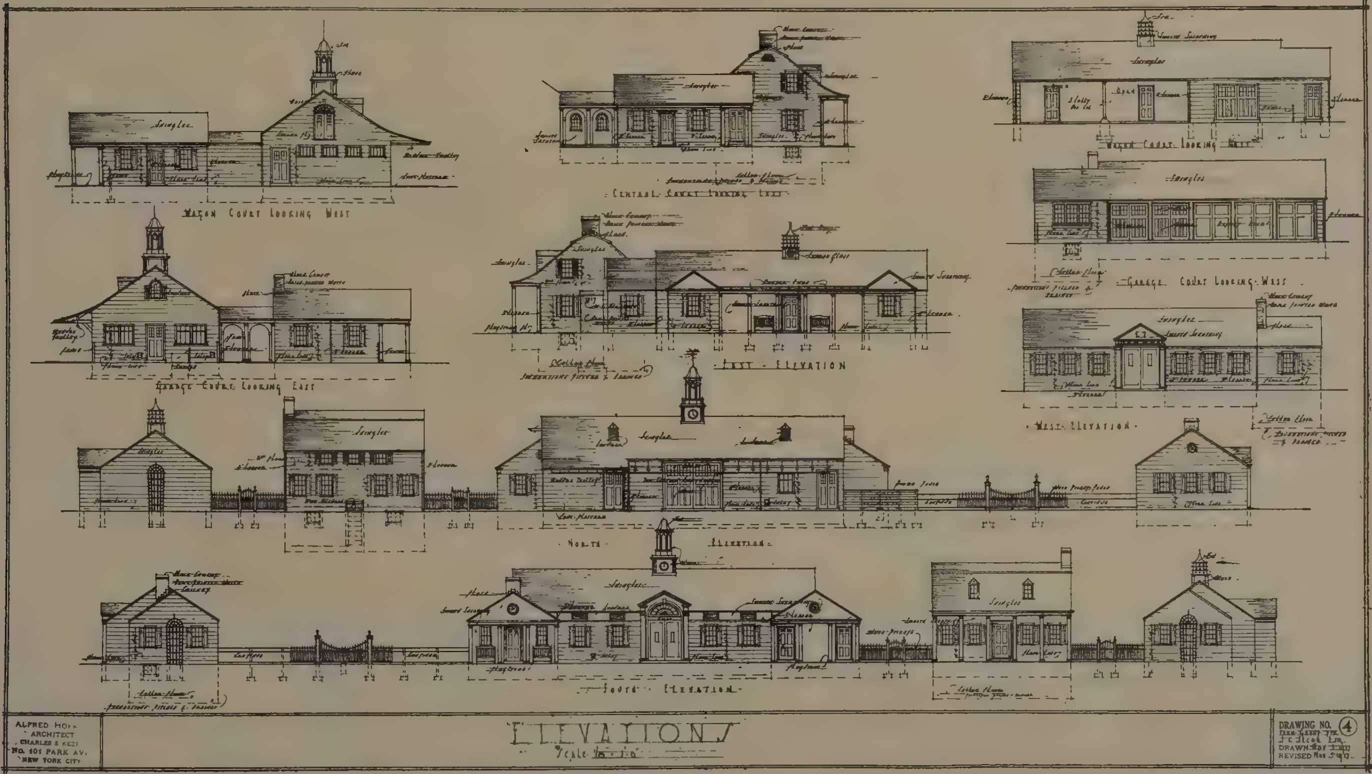


STAIR-TOWER AND POLICE DEPARTMENT WING, MUNICIPAL BUILDING, LARCHMONT, N. Y.

Frank A. Moore, Architect.

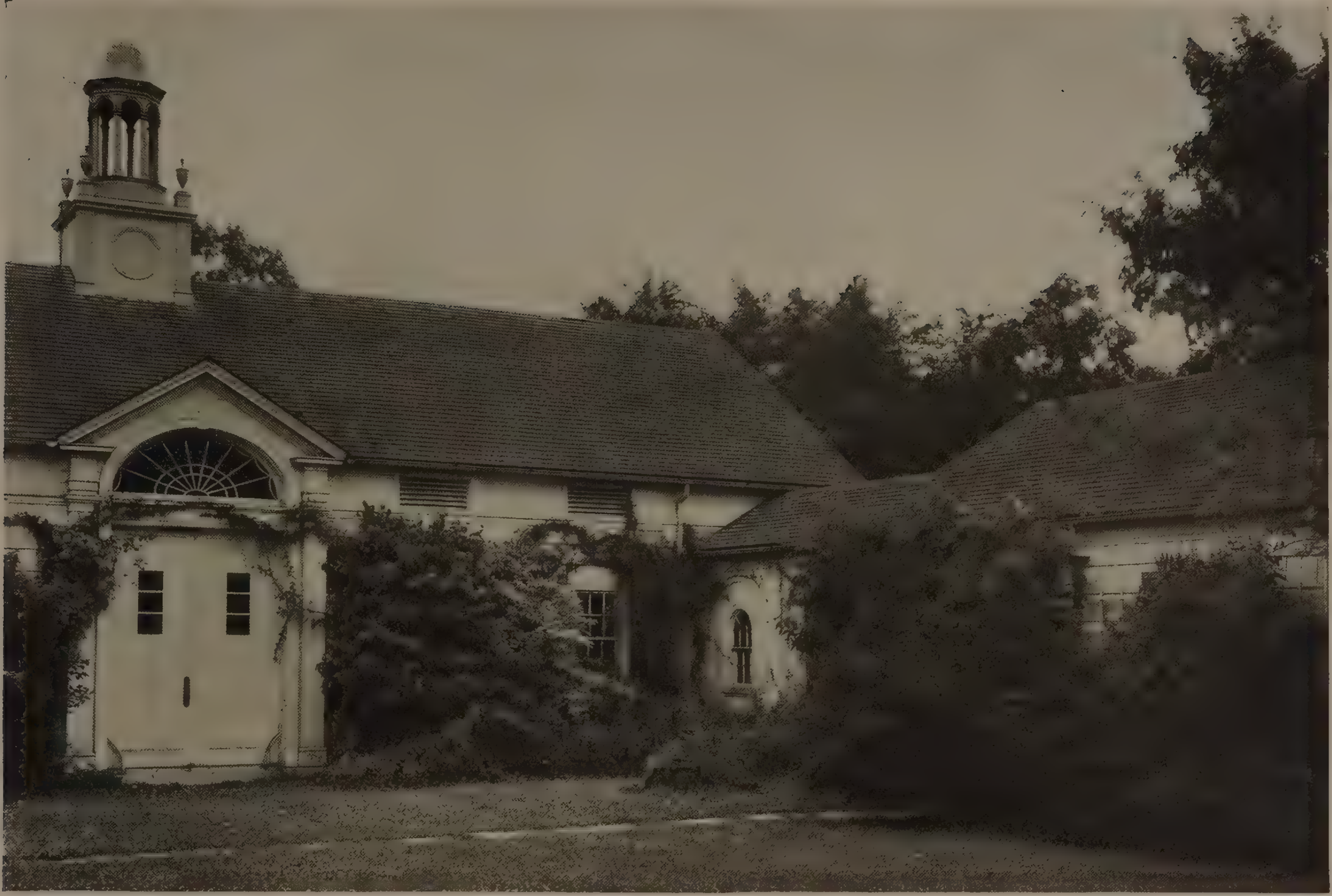


DAIRY AND HAY-BARN FROM CENTRAL COURT.

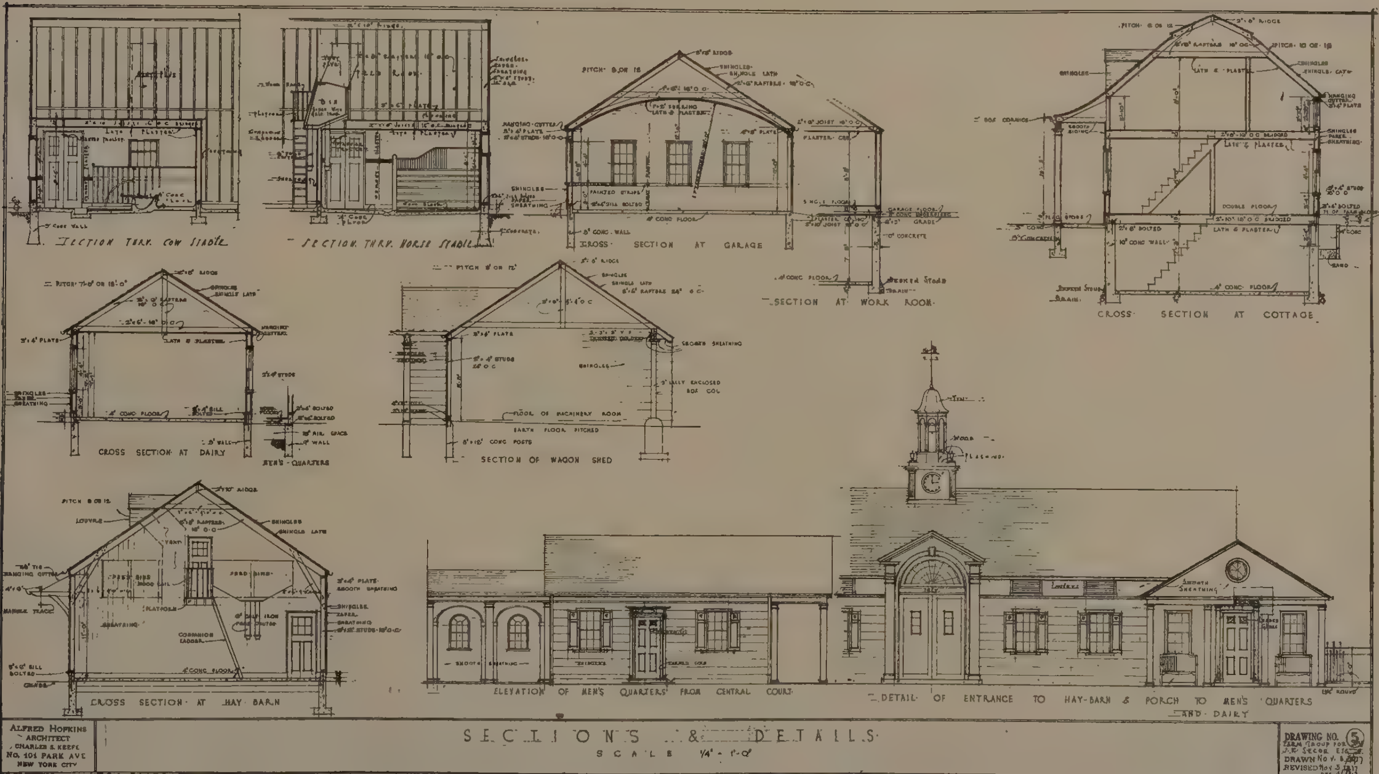


FARM GROUP FOR J. K. SECOR ESTATE, PERRYSBURG, OHIO.

Alfred Hopkins, Architect.

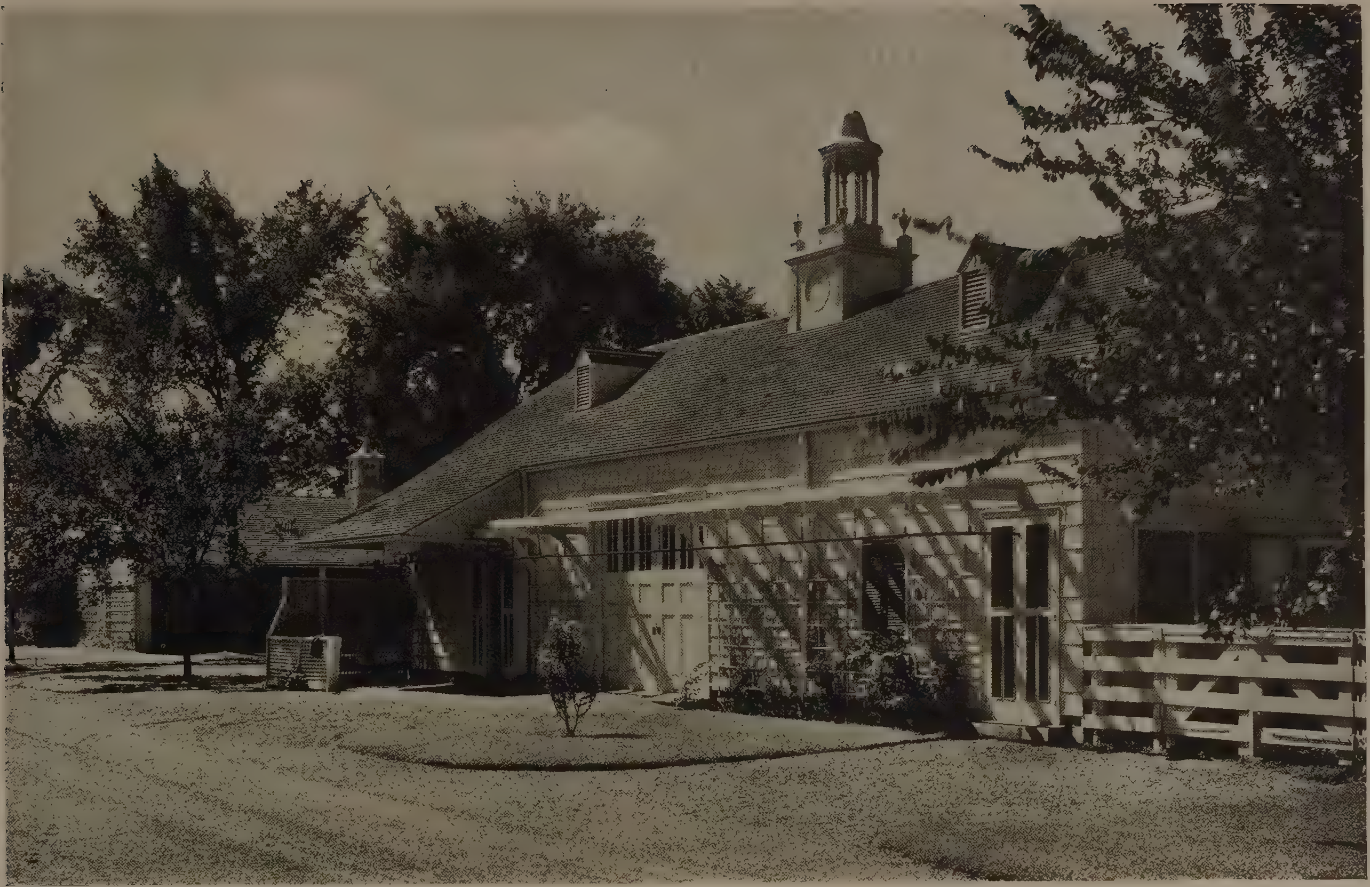


HAY-BARN AND MEN'S QUARTERS FROM CENTRAL COURT.

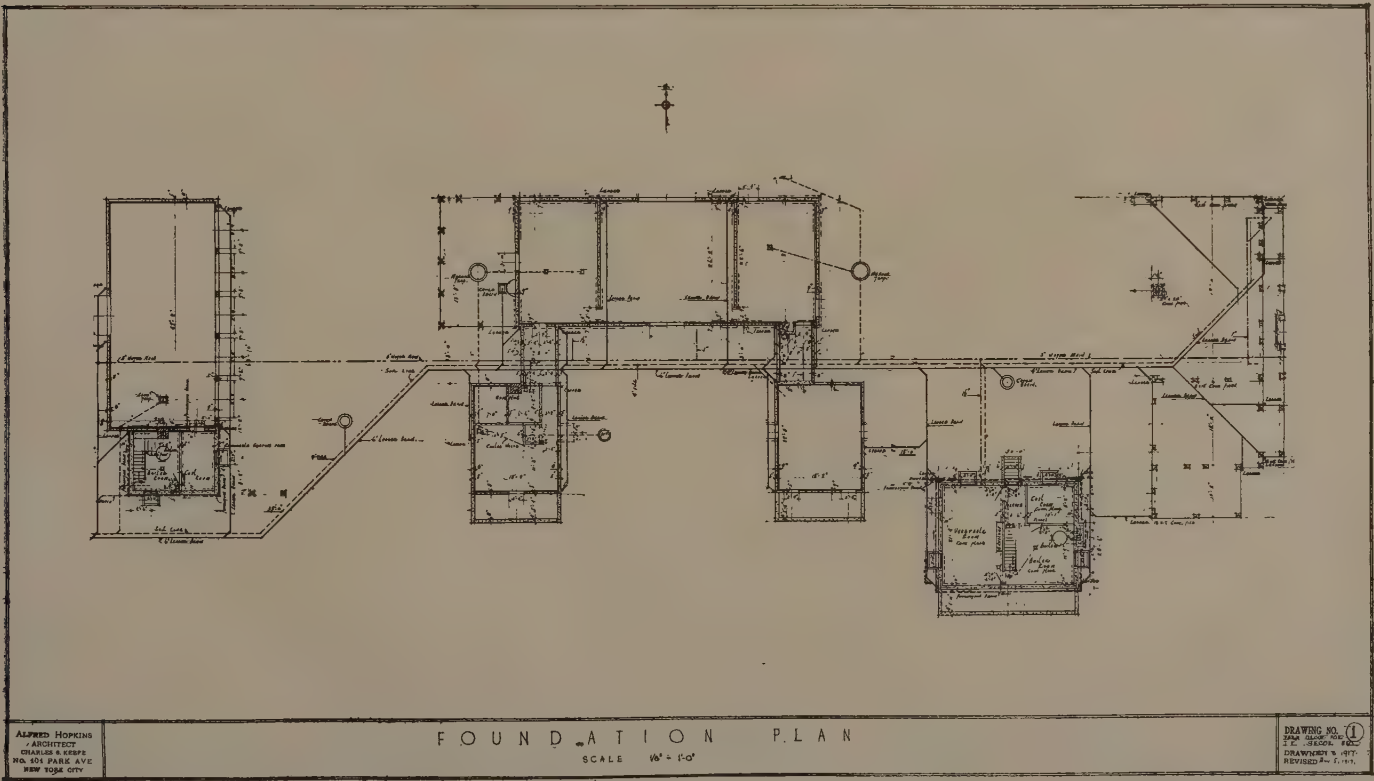


FARM GROUP FOR J. K. SECOR ESTATE, PERRYSBURG, OHIO.

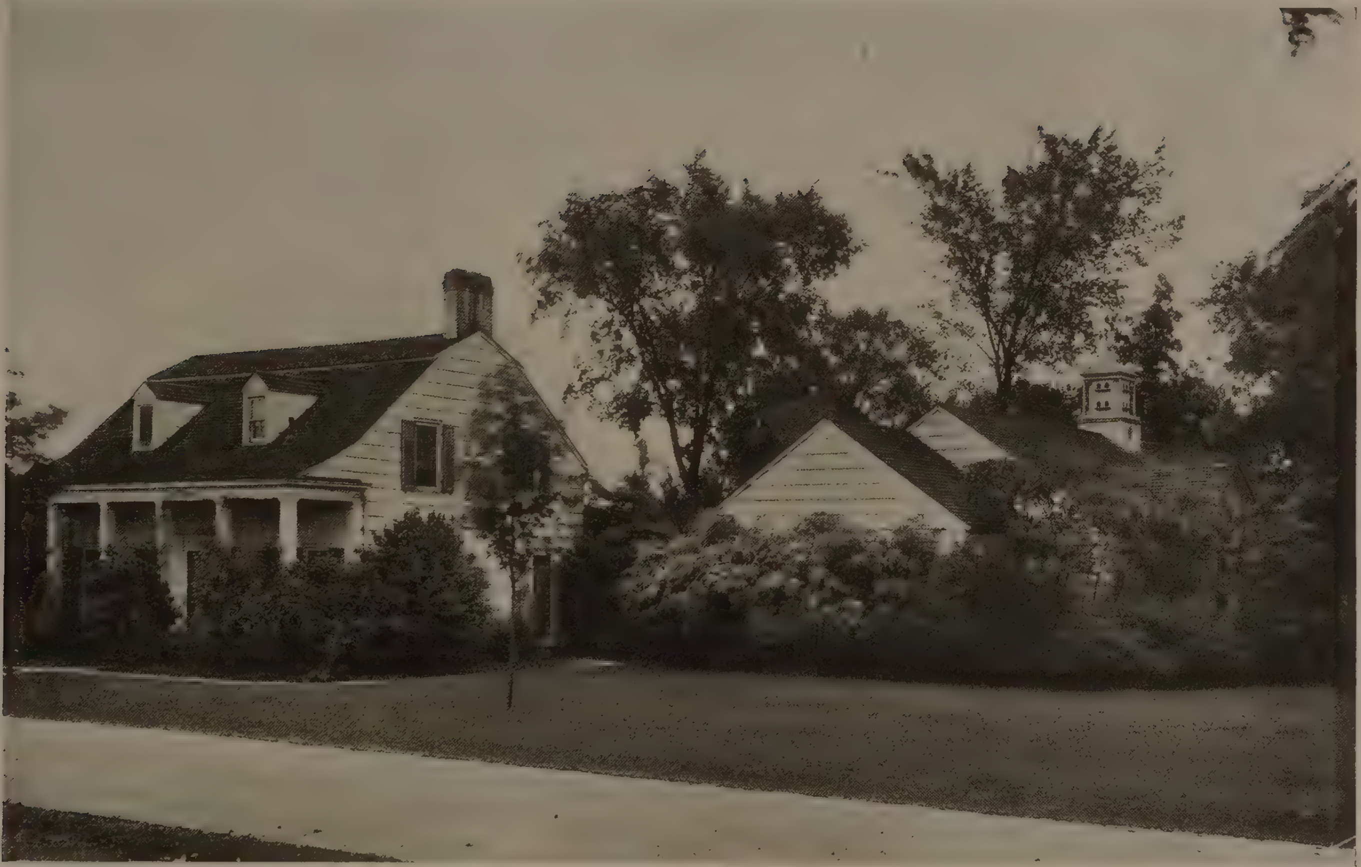
Alfred Hopkins, Architect.



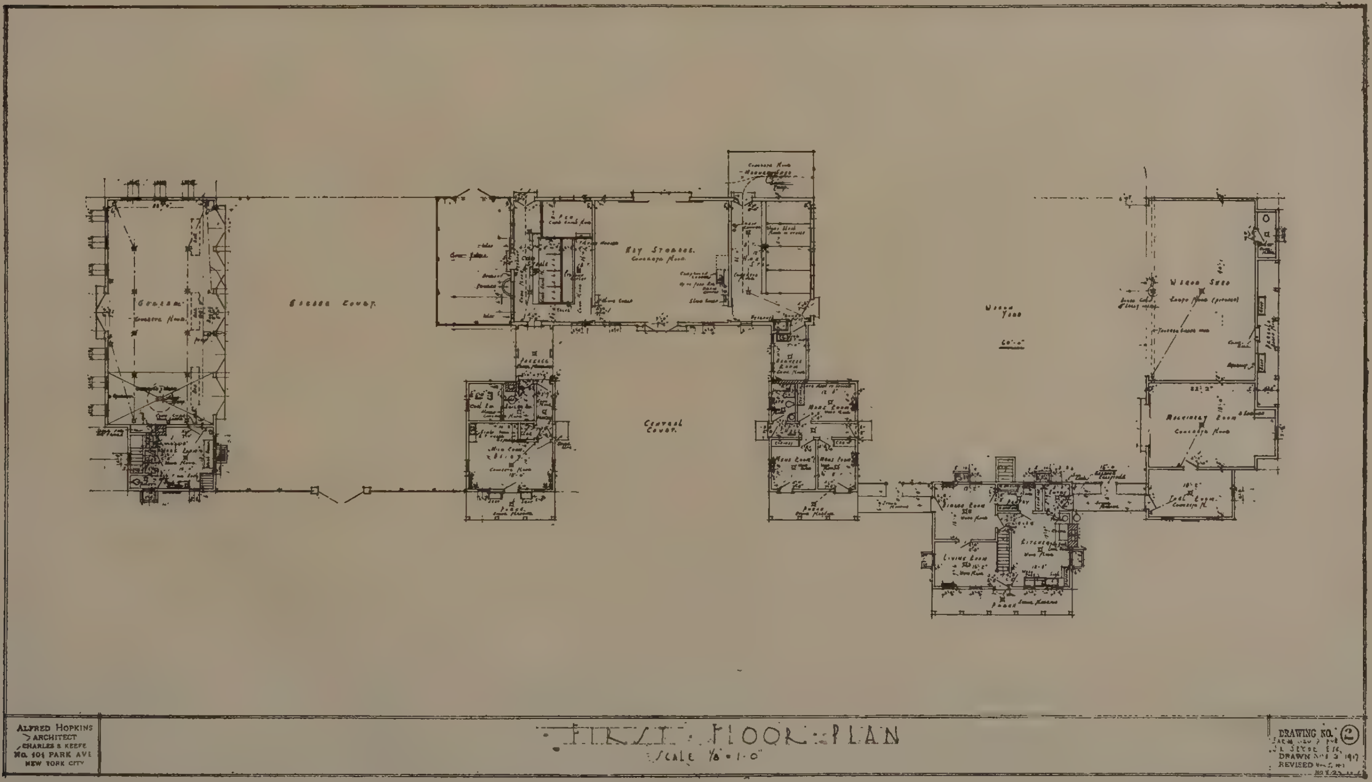
WAGON-SHED AND HAY-BARN.



FARM GROUP FOR J. K. SECOR ESTATE, PERRYSBURG, OHIO. Alfred Hopkins, Architect.

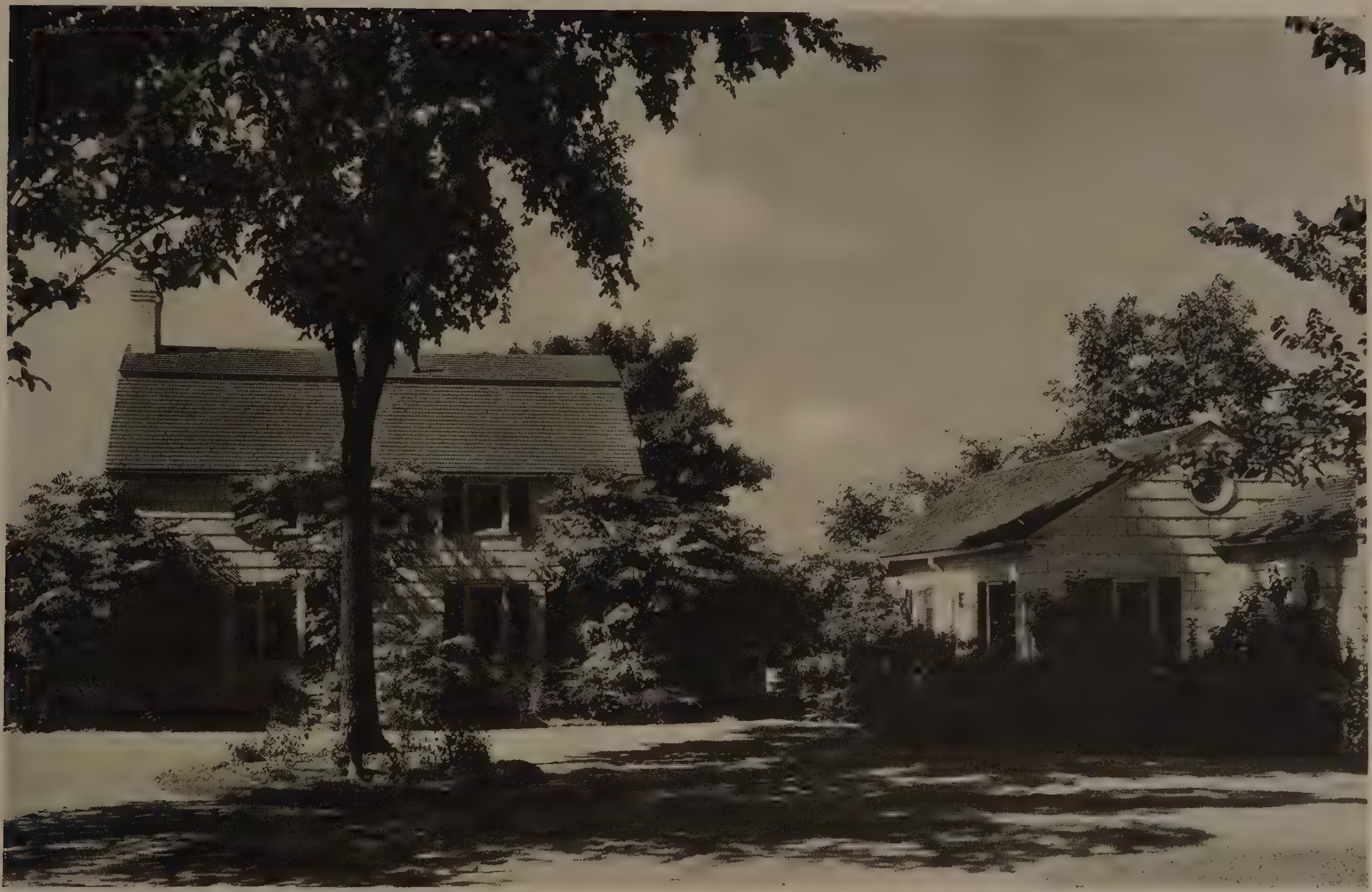


COTTAGE, TOOL-ROOM, MACHINE-ROOM, AND WAGON-SHED.

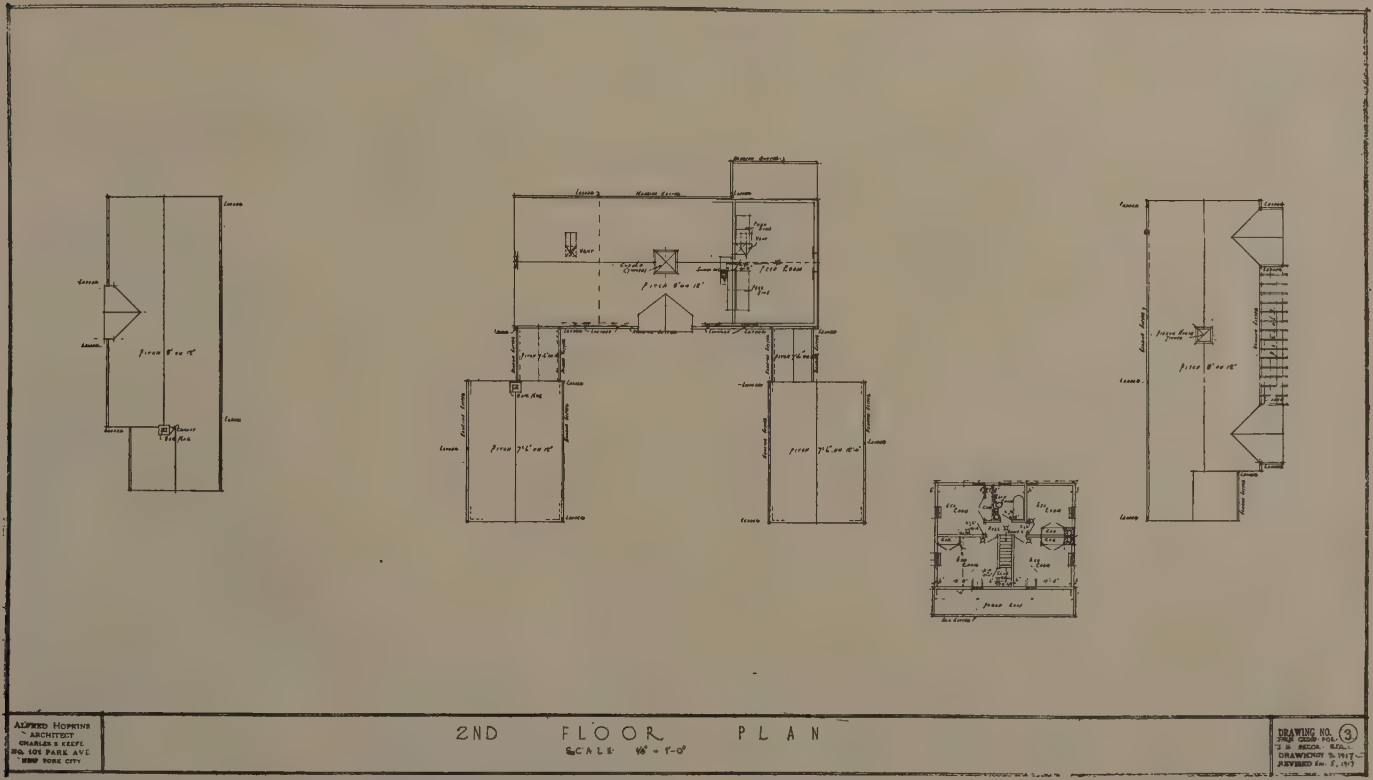


FARM GROUP FOR J. K. SECOR ESTATE, PERRYSBURG, OHIO.

Alfred Hopkins, Architect.



COTTAGE AND MEN'S QUARTERS FROM WAGON-YARD.



FARM GROUP FOR J. K. SECOR ESTATE, PERRYSBURG, OHIO. Alfred Hopkins, Architect.

Refrigeration for Hotels, Markets, and Dwellings

By John E. Starr, M.E.

SECOND ARTICLE

AMONG the accessories demanded by the present-day housing are appliances for refrigeration. It seems probable that for many years household refrigeration will continue to be accomplished largely as at present with the use of the "storage-battery" system of ice.

A small machine can be placed on top or at the side of a refrigerator.

The term "storage-battery" in this connection is merely to make use of the analogy between ice and the well-known electric storage-battery, which is simply a reservoir in which power is stored and heat or power is to be *given out*, and a chunk of ice is likewise a reservoir which *receives* heat or, in other words, produces refrigeration.

Ice is merely the subdivided representation of work already performed by nature or by a man-operated machine. A large machine is an instrument designed to take up heat. Most ice nowadays used in domestic refrigeration is simply part of a larger piece of matter out of which so much heat has been taken that it is in shape to take up more heat, or to refrigerate.

Of late years the plan of taking up heat directly in small quantities by a machine is considered, and in many cases it is feasible to do so.

The alleged advantages of the small-machine plan are that refrigeration can be attained at least as cheaply as by the storage-battery or ice method, and that heat can be taken up on a lower plane of temperature than by ice. It is also cleaner and avoids the visits of the iceman and general sloppiness.

A refrigerator with machine operated by gas. The machine can be cabinet-housed.

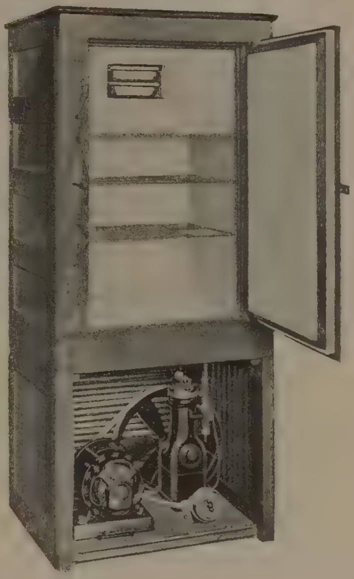
Whichever method is used, the object is the same, *i. e.*, the taking away of heat from the goods themselves and the taking away of heat that would otherwise reach the goods, to the end that the goods may always be kept "cool," or free enough from heat to preserve them—as it is well known that certain goods, when held below certain temperatures, will not spoil but remain practically "in statu quo," for a sufficient period.

As heat flows from the warm air or other surroundings through the walls of the container or refrigerator to the air inside of the same, and is carried by the air to the ice or other cold surface in the box, it follows that the same general principles attach to the container in both cases—*i. e.*, in both cases as much heat as possible must be prevented from reaching the air in the box.

This is done by building the walls of the box out of some kind of material that obstructs or resists the passage of heat. Such material is usually called "insulation," and in both cases should be good.

There is no material known that will entirely stop the passage of heat, but there are several that will obstruct its passage, and only allow a small portion of all the heat that reaches the wall of the box to pass through it.

In a family refrigerator fully 85 per cent of all the heat that does get through the insulated wall accounts for the heat that must be taken up, and if the inside temperatures are to be kept low: it makes no difference whether a machine or ice (which is a representative of the machine) is used.



An apartment-house refrigerator and machine.

The first attempt, therefore, should be to keep the passage of heat down to as low a point as possible—but there are limits. As soon as the interest, amortization, and upkeep cost on the insulated structure equals the refrigerating cost there is no further saving to be made.

It is unfortunately true that the majority of refrigerators now on the market are not made up with heat-resisting material on which the amortization, upkeep, and interest charge comes anywhere near the cost of taking up the heat that flows through their walls.

It would not be too much to say that they do not on the average approach the balance by one-half, and that the public are suffering an economic loss of millions of dollars every year, because they will not recognize that a cheap box or a goodlooking box may be inefficient as to the passage of heat. Probably this condition may always generally exist but the wise man will easily avoid it.

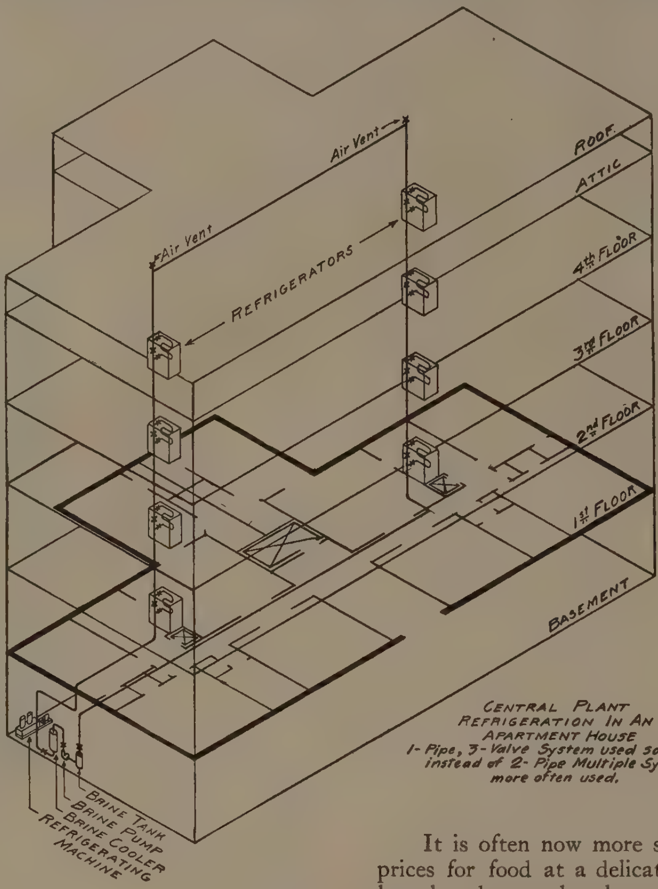
A little figuring will show that, considering the cost of refrigeration on the average at the present market for taking up heat on a small or household scale, the balancing-point is reached by providing an insulation (that can also be obtained at the present market price) that only allows $2\frac{1}{2}$ Btu. of heat to pass per day of 24 hours per degree of difference between the outside temperature and the temperature ordinarily desired in the box.

Most refrigerators as at present sold will allow from 3.5 to 6 Btu. to pass per sq. ft. per day per degree of difference, so obliging the consumer to take care of more heat than is necessary, and to pay for his refrigeration of from 40 to 140 per cent more than is necessary; against which loss he has only to charge the few extra dollars that a well-insulated box would cost him over the cost of a poor one.

This reasoning applies equally to both methods of producing refrigeration, so the subject may be dismissed with the admonition to use good refrigerators in either case.

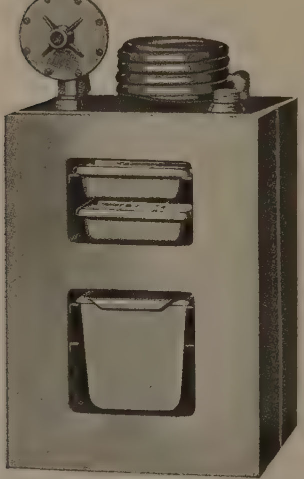
A good deal of the argument in favor of the machine method lies in the fact that the machines can make up for the deficiency of insulation because they will take up heat on a lower plane than ice. This is true, but it will cost more for a low temperature than a higher one, and why not avoid the extra cost by a provision that will be once for all?

Ice has been used for centuries in domestic refrigeration and a general description of how it is used is not necessary, except to say that as a rule it is badly used, and that its possibilities are not anywhere near realized in average practice.



Central Plant Refrigeration In An Apartment House
1-Pipe, 3-Valve System used sometimes instead of 2-Pipe Multiple System more often used.

The domestic refrigerating-machines of the present day are mostly miniatures of the larger machines, with only the added thermostat-actuated stoppers and starters, according to temperatures desired, so as to render them automatic; a feature not necessary in a large machine which runs continuously and has attendants to stop and start it if required.



A cooler placed in the space usually occupied by ice and connected by small pipes to a machine on top or at the side of refrigerator. The action of the machine keeps the entire surface cold—from 15 to 25° F.

The principal objection to the universal use of small machines is their first cost, a feature that as to the consumer does not enter in the use of ice. The use of a refrigerator or food-container is common to both.

The total cost of refrigeration for a period of years covering the life of the machine is its first cost plus the interest on the use of the cost money plus the cost of operation plus the cost of repair. The first cost of the machine, when added to the cost of operation and repair at the present time, is often more than the cost of ice for refrigeration, and hence its use is largely confined to people who place a value on the alleged advantages over ice and to people who possess cash enough to invest in one.

Most of them run at a less operating cost than the use of ice would cost, but with even the best of them, the period of amortization of the first cost and interest out of the savings of operation over ice cost is too great a period for the average consumer to contemplate. Many machines are purchased as a luxury by people that can afford it, and to whom the character of the refrigeration expected is of more value than the actual cost on an ice basis. Others may use the machine in localities where it is difficult to get ice with regularity.

Many people prefer to buy service in the same way they buy food.

It is often now more satisfactory to pay two or three prices for food at a delicatessen than to buy flour by the barrel and sugar by the sack, as people used to do in our boyhood days.

Again, the average user of refrigeration seldom sees at one time the $175 or $200 necessary to buy a machine, and if he did, the chances are that he would buy an automobile instead, as long as there was another though possibly more expensive way to satisfy his refrigerating needs. So they buy ten or fifteen cents' worth of refrigeration at a time, instead of investing a large lump at once.

Still, the household machine has to be considered as a possible accessory to the housekeeping menage. It is like a great many household accessories, and perhaps hardly comes under the purview of the architect.

There is, however, another method of supplying refrigeration, especially in apartment-houses, which properly comes into the architect's realm; hence the architect should know something on the subject in order to decide what is best for his client.

The various subdivided household areas in an apartment-house can, of course, be supplied with refrigeration in the same manner as has been heretofore treated of for hotels and markets, and the same principles apply.

The general arrangement of such a system is shown in diagram above.

The unit-machine system, or a small machine for each refrigerator, suggests one possible disadvantage that must be looked into when apartment-houses are considered. Most household refrigerating machines now on the market are operated by electric motors. The "whir" and slight vibration of one small motor in one dwelling might not be objectionably noticeable, but the installation of fifteen or twenty small motors in one building (usually built on steel frame) might cause objectionable noise or vibration if all were operating (as they might be) at the same moment. This may not be an insuperable objection, but is worthy of thought.

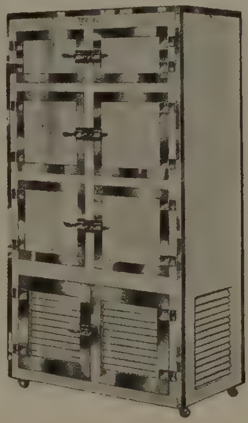
A family refrigerator and machine.

The objection to a central refrigerating-machine operating a number of boxes in an apartment-house lies in the possible cost of operation.

If the house is large enough or the circumstances are such that a more or less skilled engine-man is wanted in any event on the premises, it will usually cost no more for labor if a refrigerating-machine is placed in his care, but where a skilled man is obliged to be kept on the pay-roll simply because there is a refrigerating-machine in the list of house appliances, the cost of such a man might cause the refrigeration to cost more than by the ice method, and the tenants or the landlord might not wish to shoulder this cost. Sometimes the local law calls for a licensed engineer to be in charge.

So the architect who has to shape up his plans to meet the requirements of either kind of service must take into consideration the particular circumstances likely to exist at each building.

It is difficult to predict what the future trend will be as to the method of household refrigeration.



At the present time our advertising columns contain considerable matter setting forth the advantages of mechanical household refrigeration and considerable sales in money magnitude are being made by responsible concerns of refrigerating appliances, but not over 1½ per cent of the entire refrigerating demand as it exists to-day has been touched, as it must be remembered that a present sale of apparatus represents the refrigerating demand for many years to come on account of the cost of apparatus.

The history of the next few years only will prove or disprove the speculations of to-day.

The best position for the architect to take, if he is called upon to provide for household refrigeration, is to provide for a good refrigerator in accordance with the sound principles of refrigeration.

Such a refrigerator will answer the requirements of either or any method.

Announcements

Gilbert J. P. Jacques, of Windsor, Ontario, and A. Stuart Allaster, formerly of Brockville, Ontario, have formed a partnership under the firm name of Jacques & Allaster, registered architects, with offices at No. 3 Ouellette Avenue, Suite 108, Windsor, Ontario.

Adams & Adams, architects, San Antonio, Texas, have moved from 517 Gibbs Building to 701 Builders Exchange Building, San Antonio, Texas.

W. W. La Chance has severed his connection with the firm of White & La Chance, architects, Niagara Falls, and has opened offices in the Niagara Trust Company Building in Niagara Falls, N. Y., and will be glad to have catalogues from all manufacturers interested in school-building materials and equipments.

F. H. Koenigsberger, architect, announces the removal of his offices to 48 Walnut Street, Newark, N. J.

Ronald W. Catto, B.A.Sc., R.A.I.C., O.A.A., and Douglas E. Catto, B.Arch., who have been associated in the practice of architecture under the firm name of Ronald W. Catto, Registered Architect, 47 King Street West, Toronto, announce the formation of a partnership. They have moved their offices and will continue practice under the firm name of Catto & Catto, Architects, Brock Chambers, 200 Bay Street, Toronto 2, Ontario.

Philip S. Tyre, R. A., announces his removal from 1509 Arch Street to 114 South Street, Philadelphia, Pa.

The Beauty of Old Age

Of course, youth has a beauty that belongs to itself, but old age, to those wise enough to see it, has beauty also.

Take the new French villages built in the war area, and compare them with the old villages in, say, Touraine.

The architecture is much the same, yet the new villages repel and the old ones attract.

The explanation is that the old buildings have been softened by the weather. They show that they have had experience. The roofs undulate. The colors are softer. One feels in looking at them that a great architect has been at work.

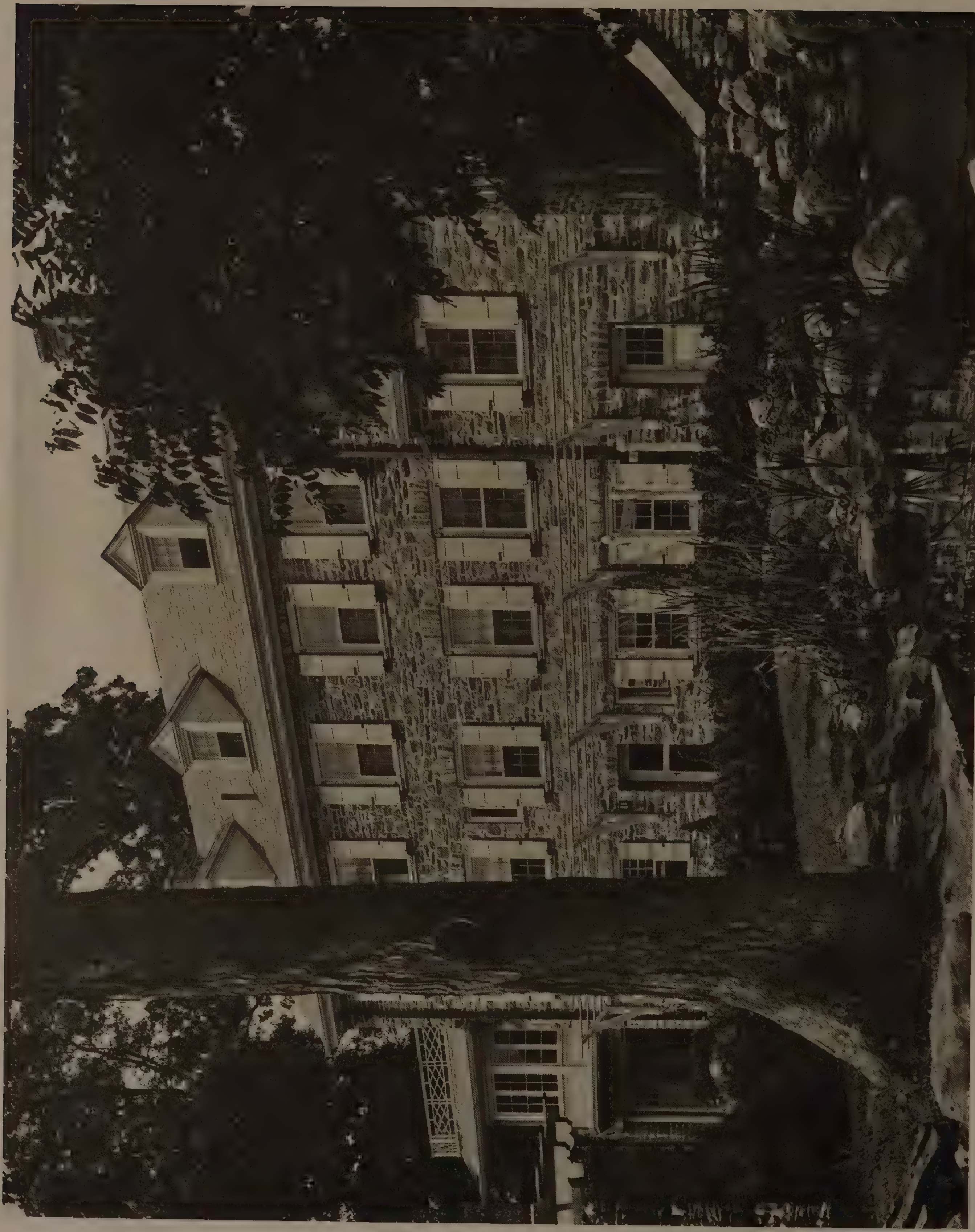
Travel through what is called the château country of France, the valley of the Loire, and you will worship the beauty that is expressed in the palaces, but you will also find your heart going out to the beauty that is expressed in the villages where the common people lived who provided the money to support the luxury of the châteaux.

This is a country that should be visited by every architect who desires to perfect his art. Even if it is necessary to make sacrifices in order to take the trip, the sacrifices will turn out to be not sacrifices at all. The rewards of the trip will be great.

Here you will find palaces where expense was no object, and right near them will be small houses built by poor people, for poor people, which have their own special beauty, and are every bit as charming as the homes of the rich.

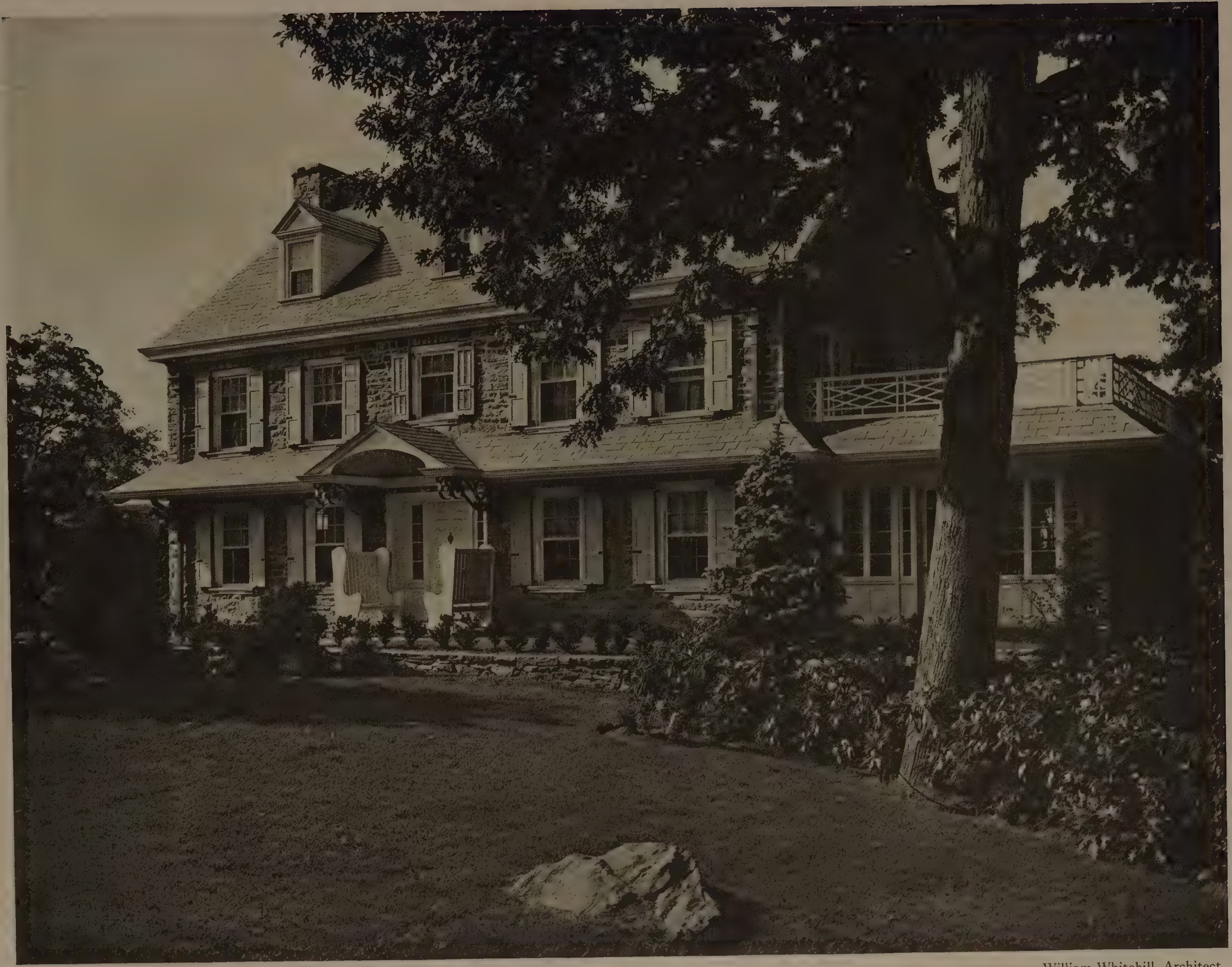
One knowing something of the histories of the people who lived in châteaux wonders if, after all, the dwellers in the little homes did not have the better life.

—*The Engineer.*



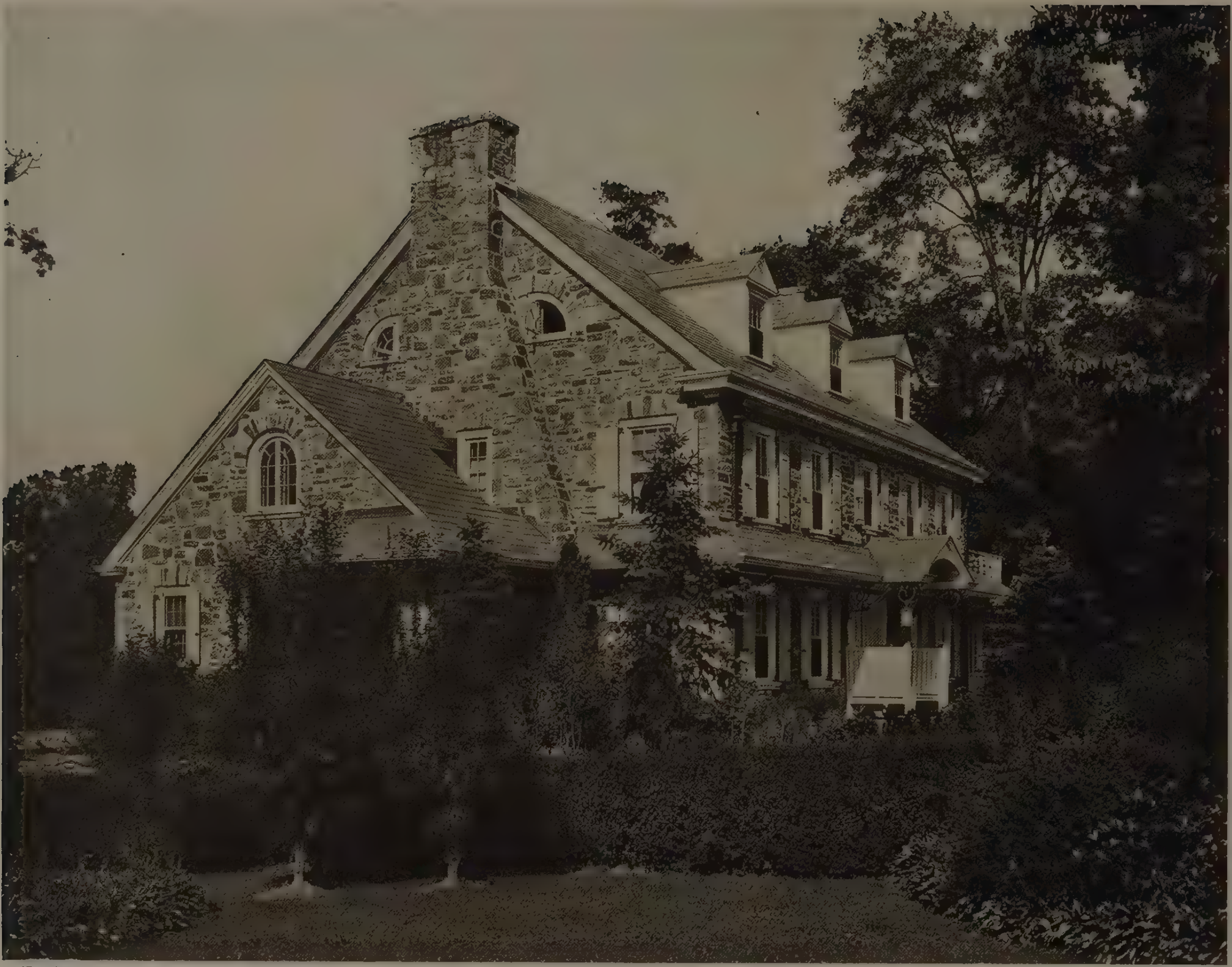
GARDEN FRONT, RESIDENCE, FRANK A. HOLBY, BEECHMONT, NEW ROCHELLE, N. Y.

William Whitehill, Architect.

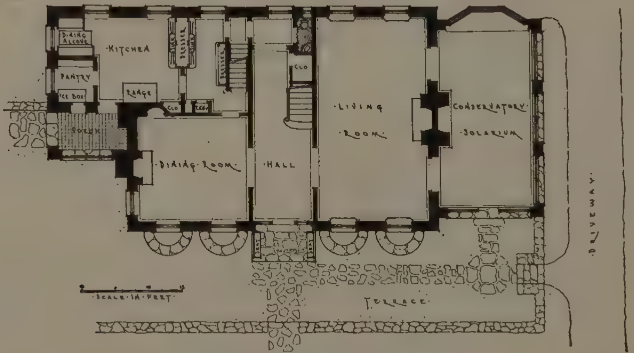


RESIDENCE, FRANK A. HOLBY, BEECHMONT, NEW ROCHELLE, N. Y.

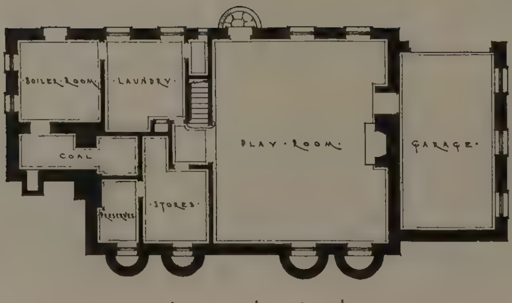
William Whitehill, Architect.



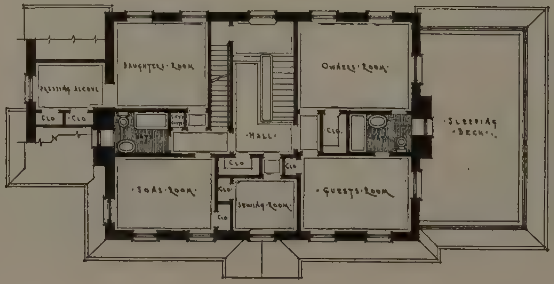
DETAIL.



FIRST · FLOOR · PLAN



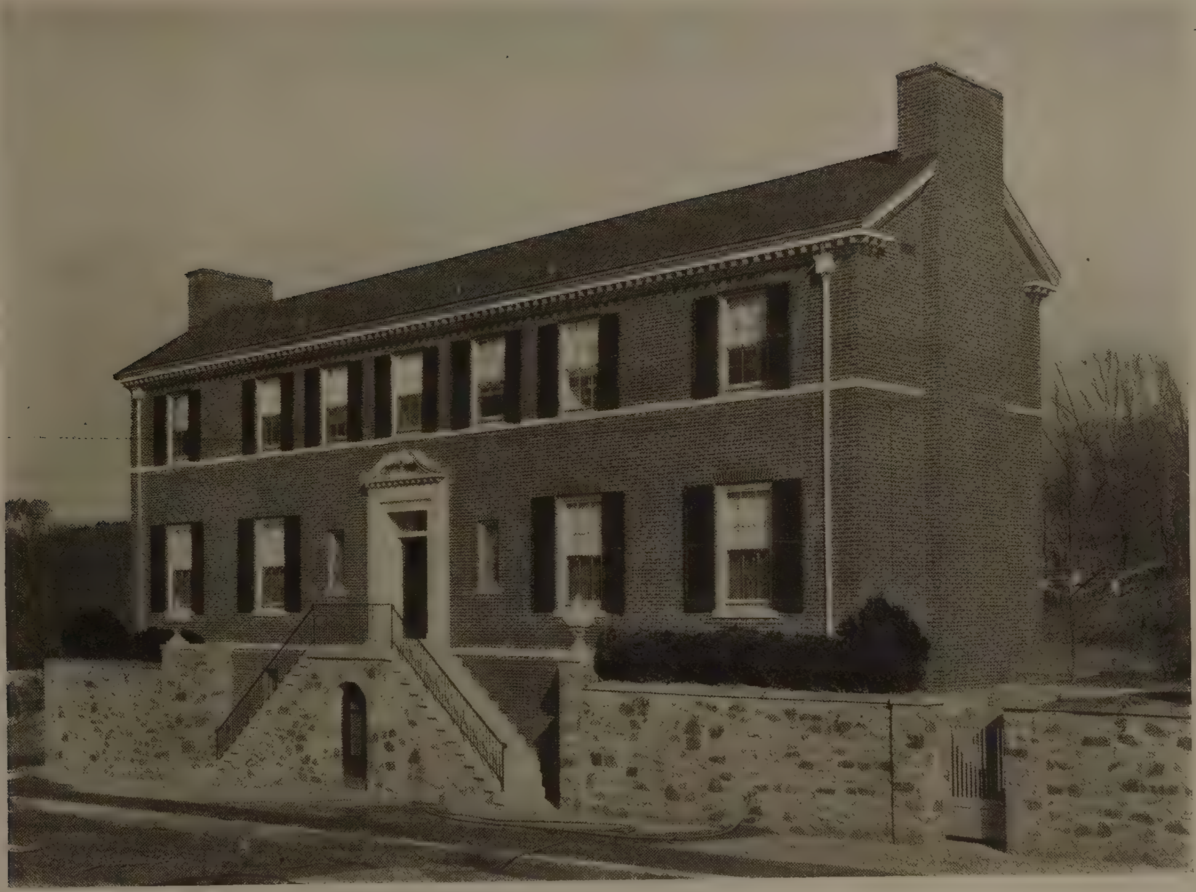
BASEMENT · PLAN ·

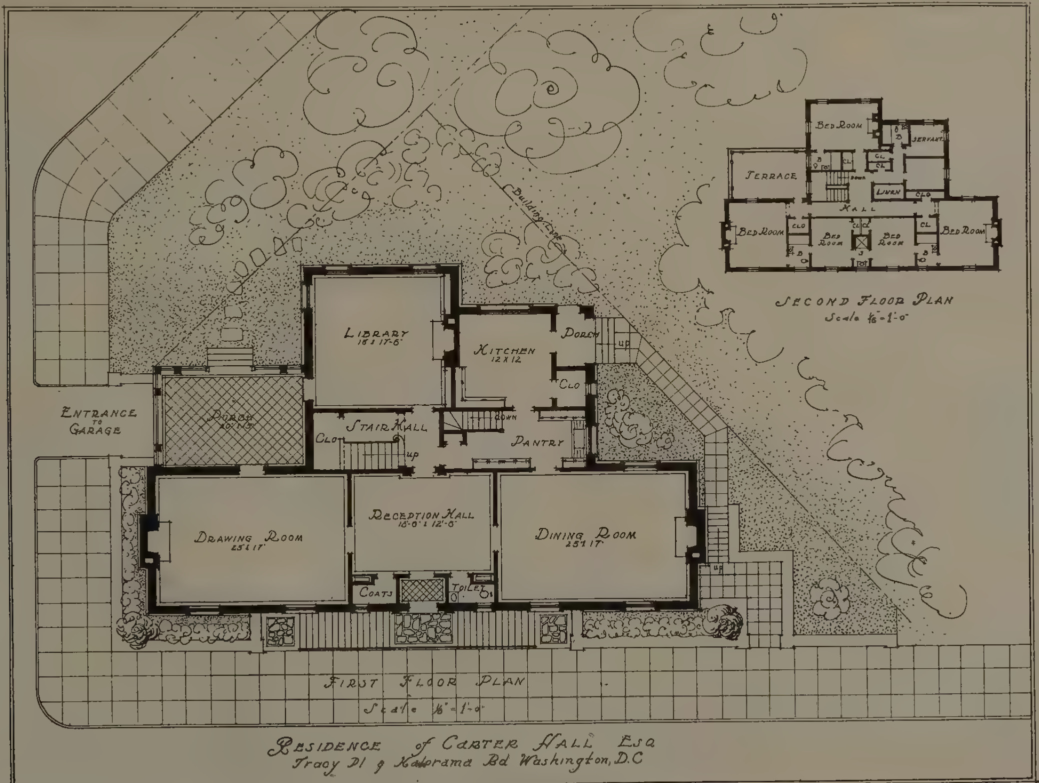


SECOND · FLOOR · PLAN

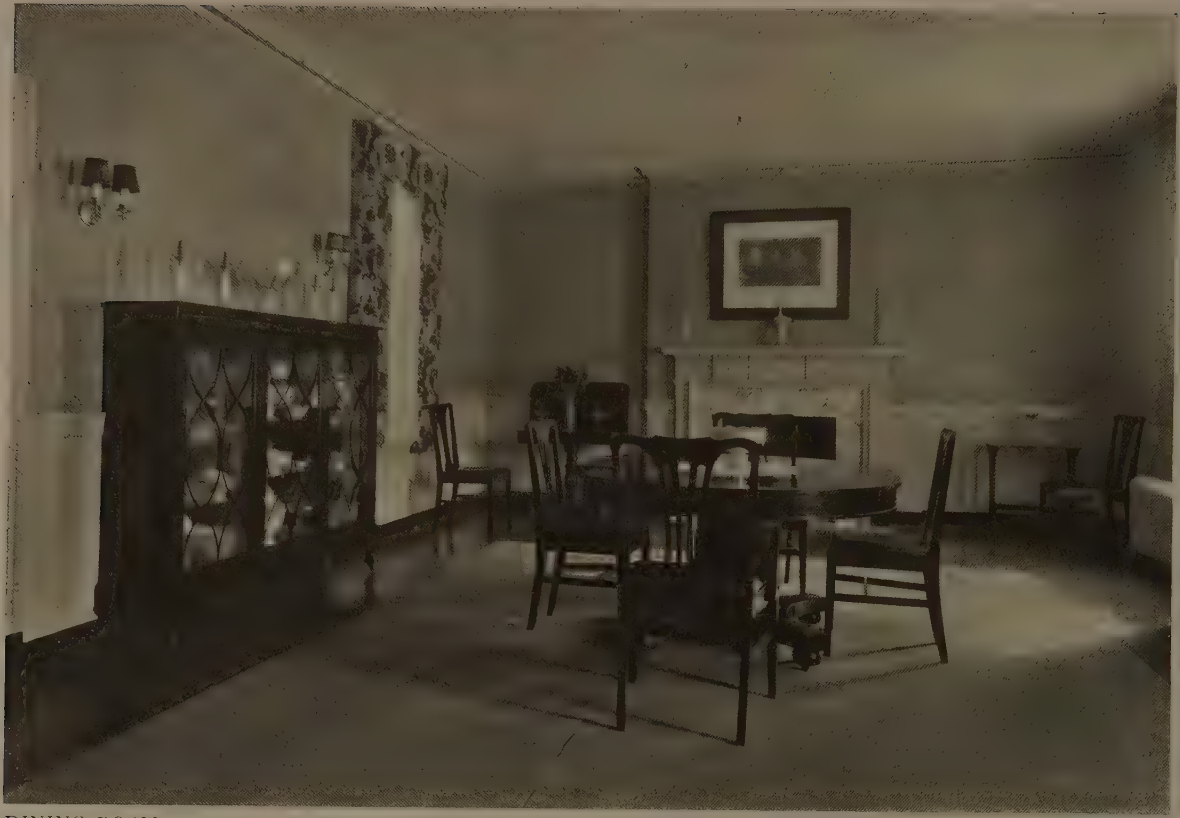
RESIDENCE, FRANK A. HOLBY, BEECHMONT, NEW ROCHELLE, N. Y.

William Whitehill, Architect.

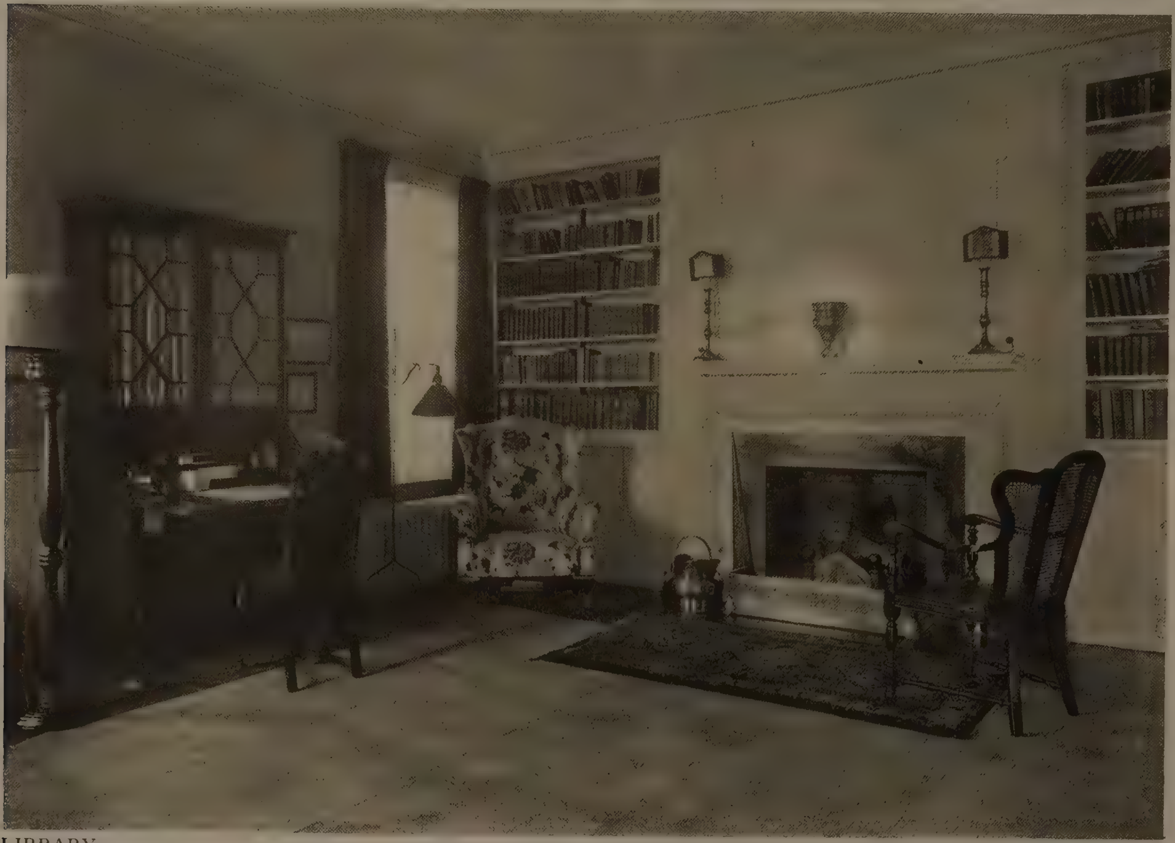




RESIDENCE, CARTER HALL, WASHINGTON, D. C. Waddy D. Wood, Architect.



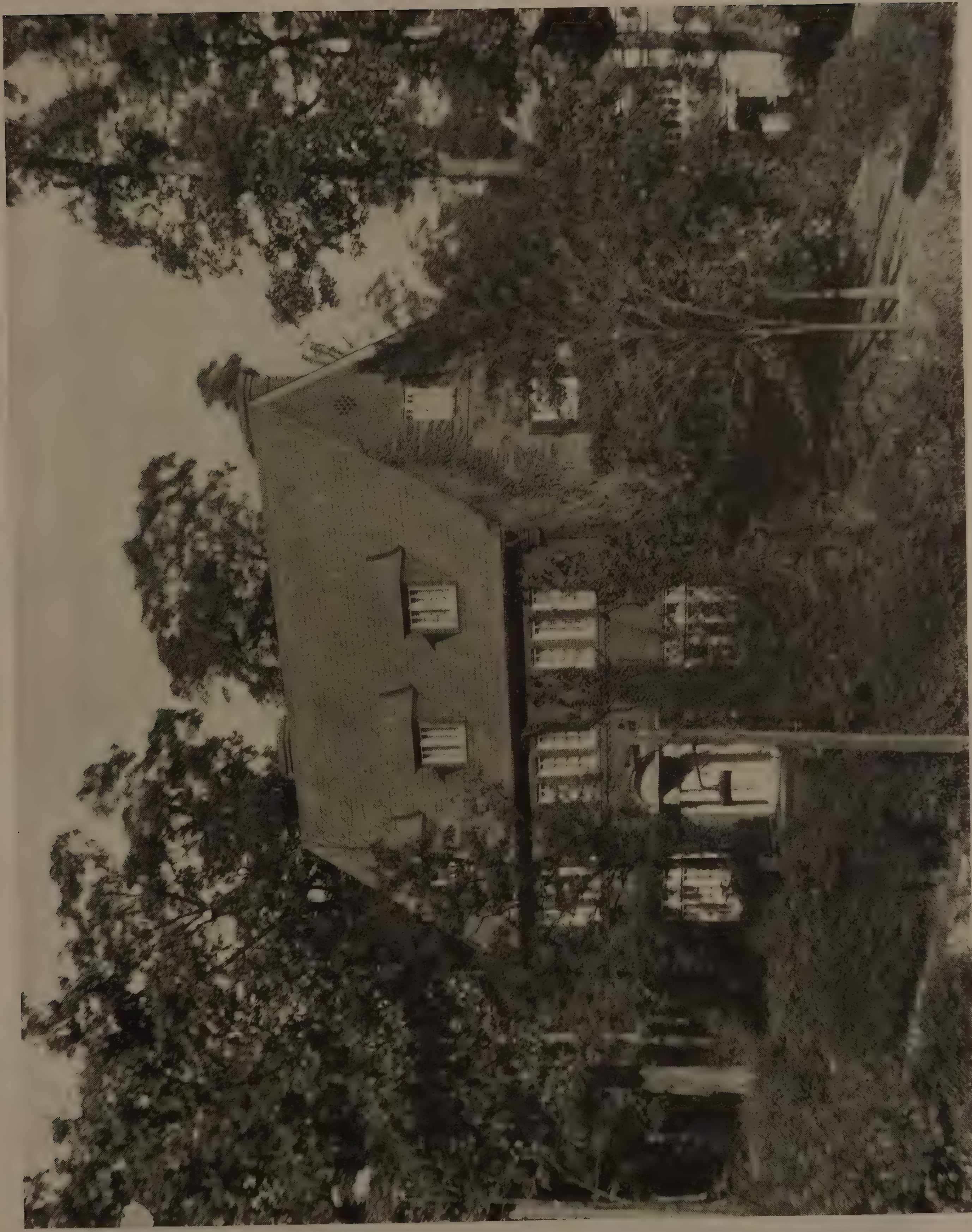
DINING-ROOM.



LIBRARY.

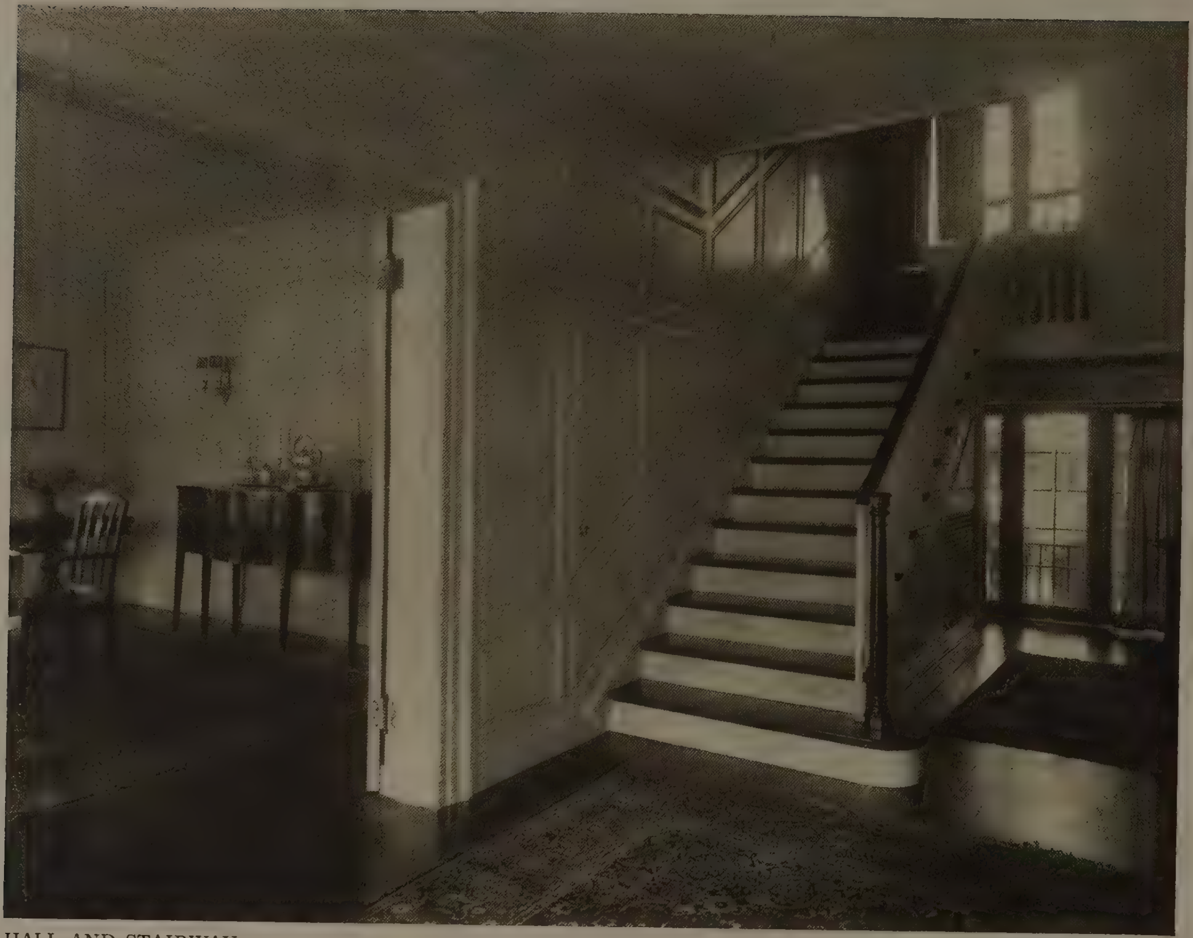
Waddy D. Wood, Architect.

RESIDENCE, CARTER HALL, WASHINGTON, D. C.

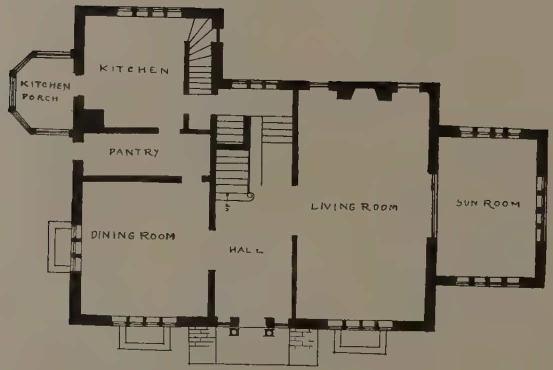


RESIDENCE, JAMES C. FENHAGEN, GUILFORD, BALTIMORE, MD.

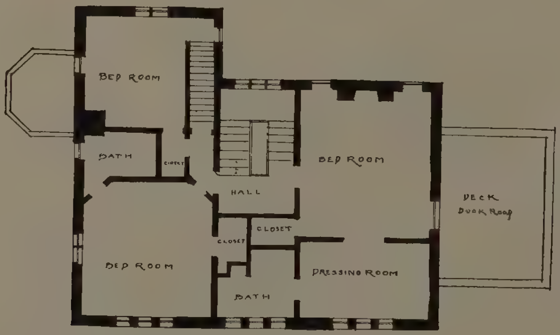
Laurence H. Fowler, Architect.



HALL AND STAIRWAY.



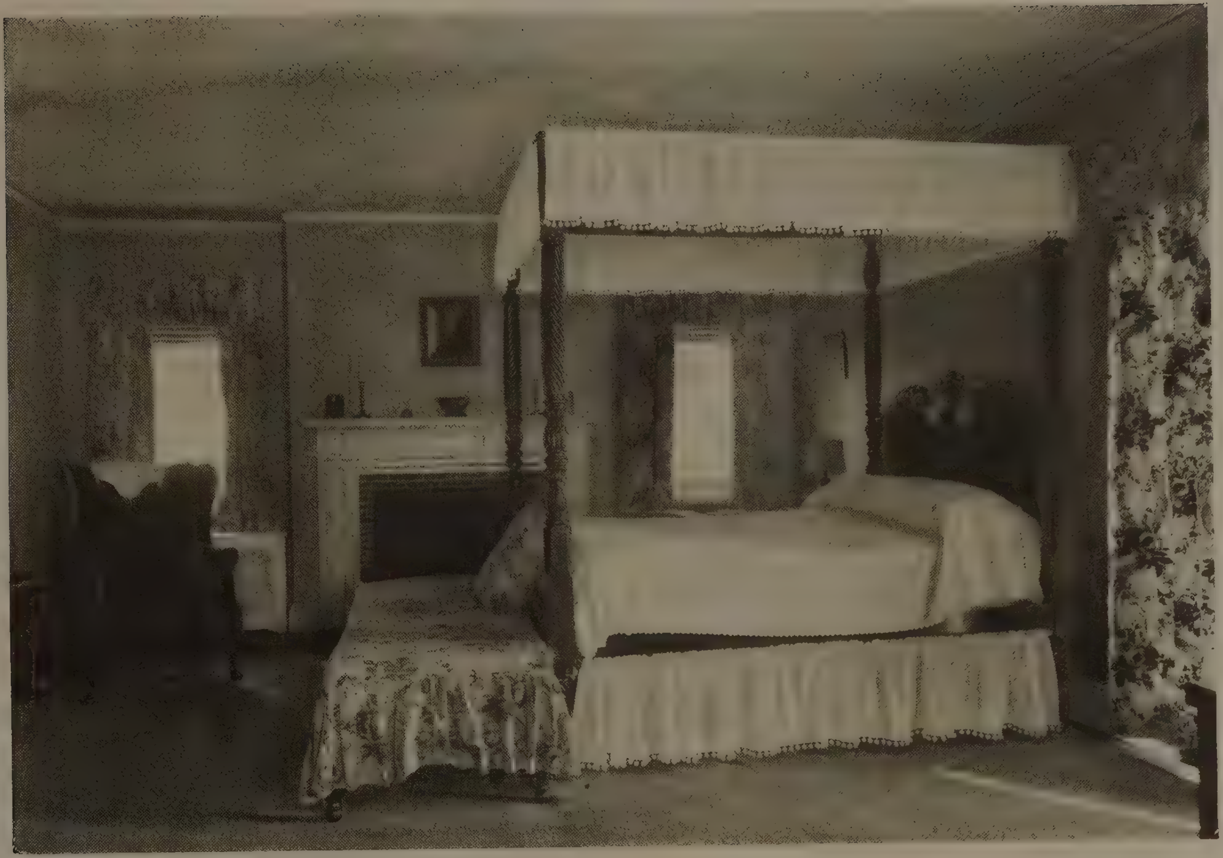
FIRST-FLOOR PLAN.



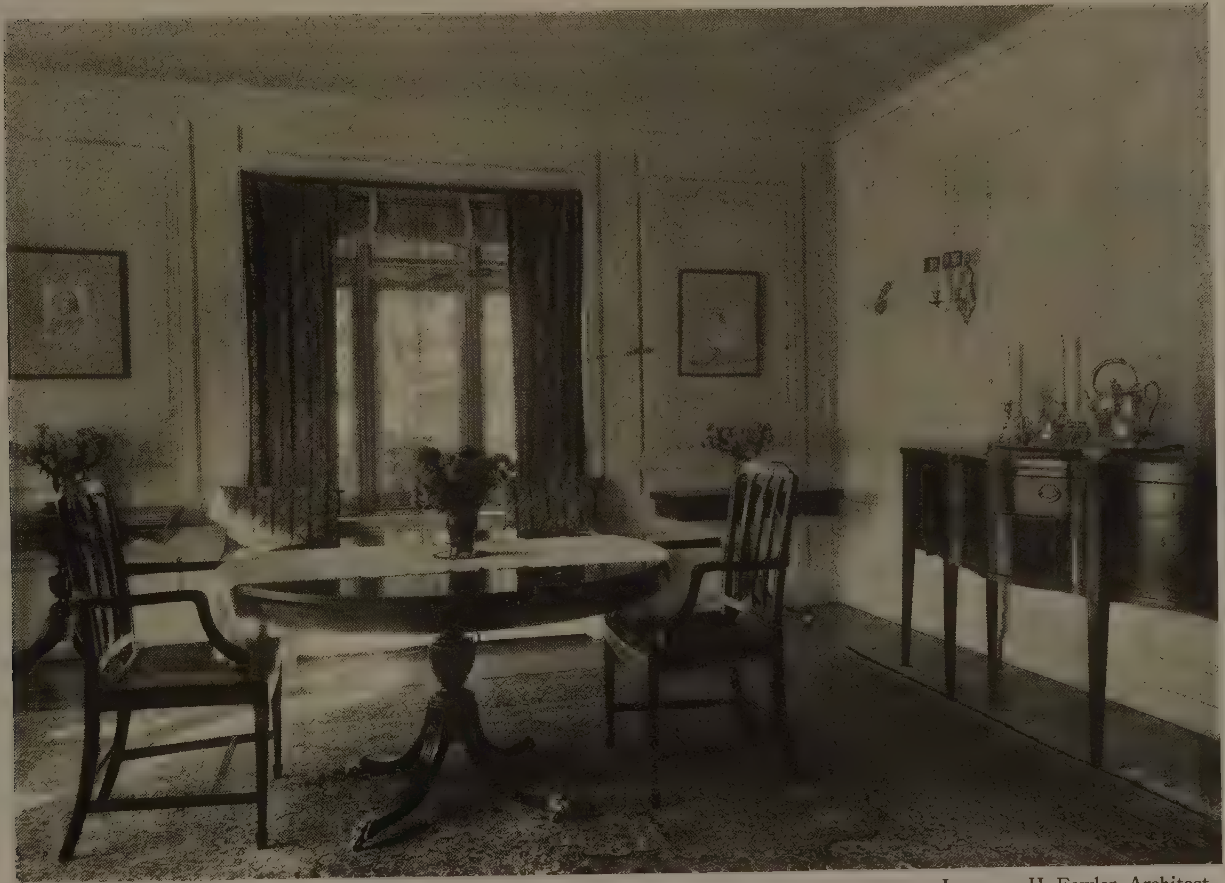
SECOND-FLOOR PLAN.

RESIDENCE, JAMES C. FENHAGEN, GUILFORD, BALTIMORE, MD.

Laurence H. Fowler, Architect.



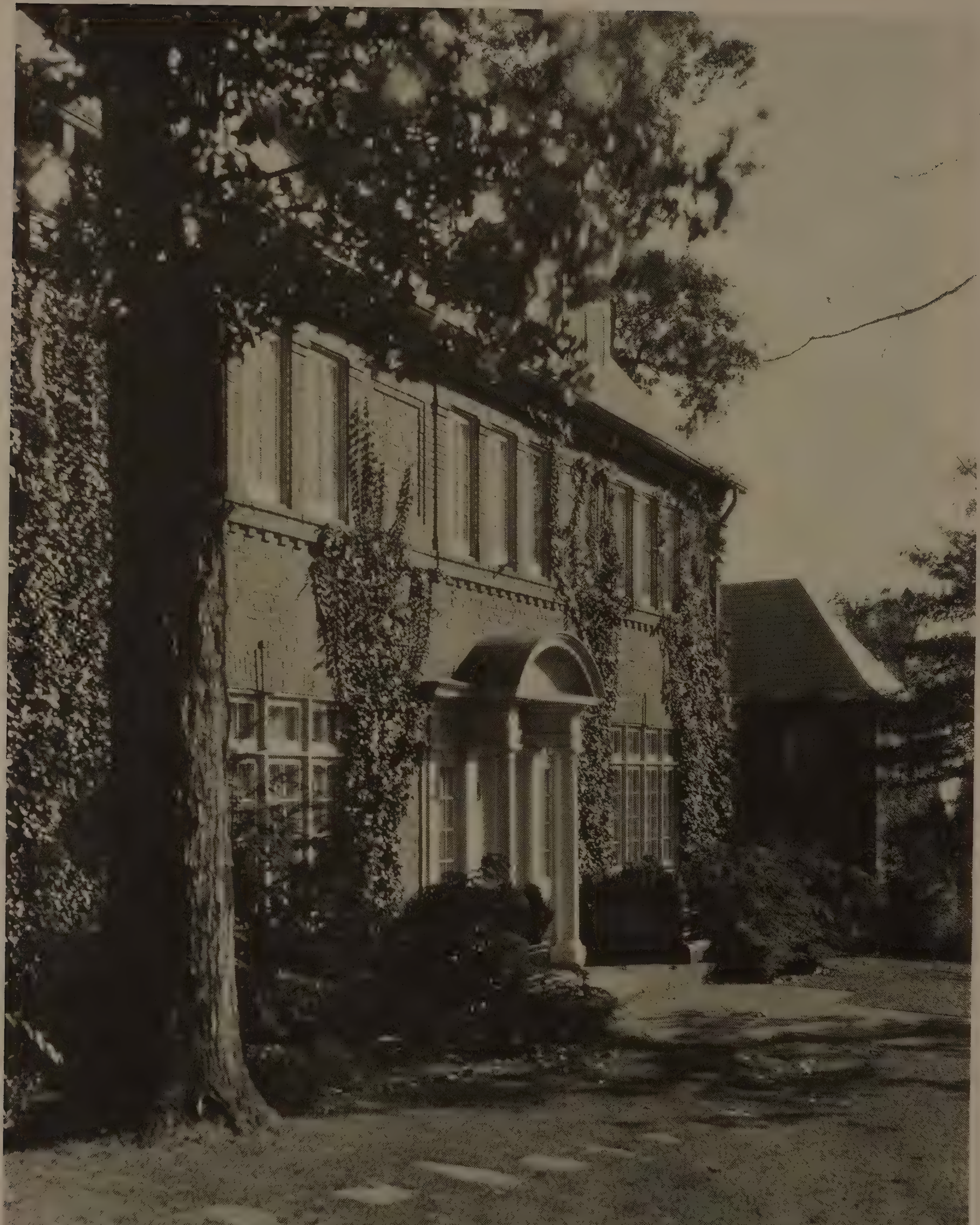
BEDROOM.



DINING-ROOM.

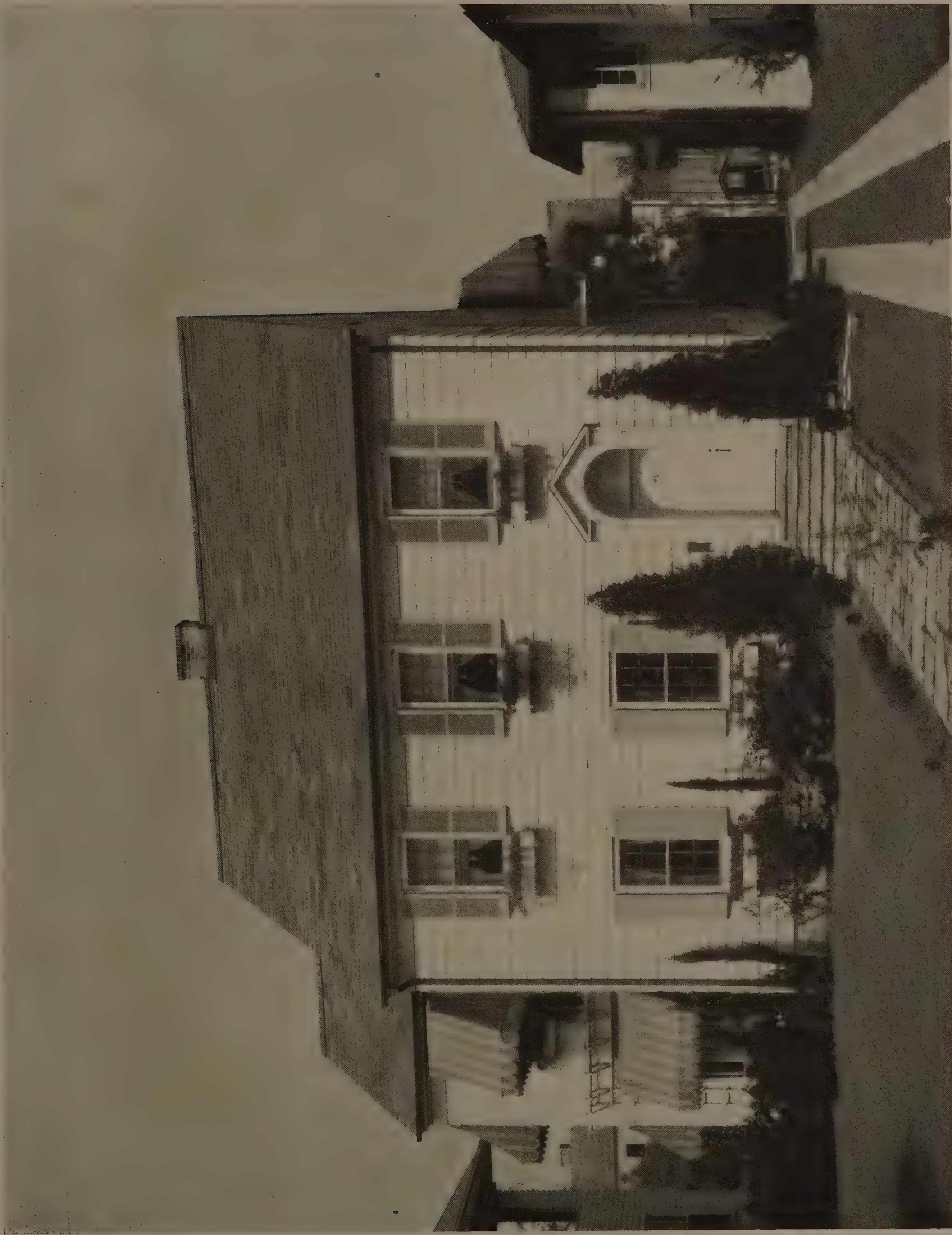
Laurence H. Fowler, Architect.

RESIDENCE, JAMES C. FENHAGEN, GUILFORD, BALTIMORE, MD.



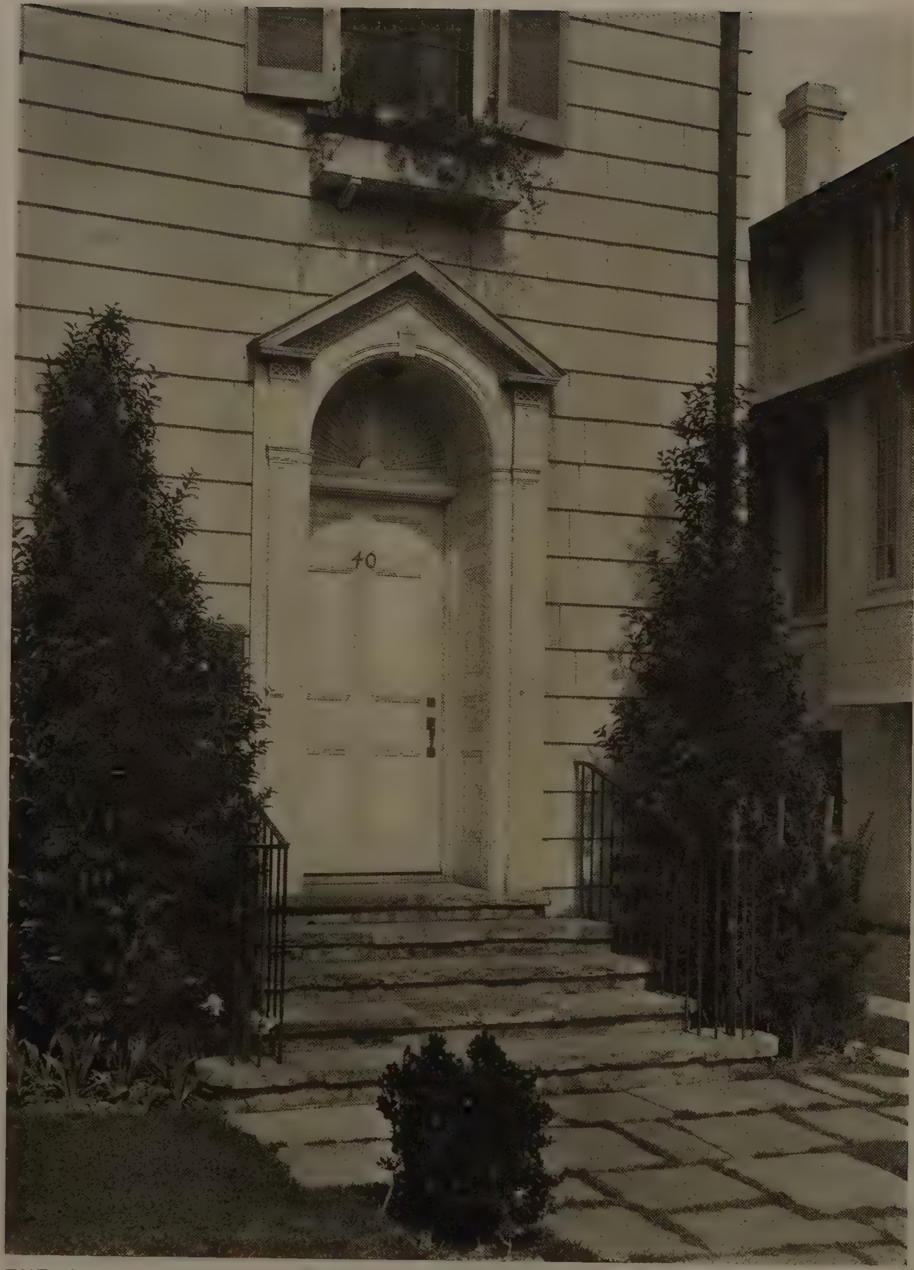
DETAIL OF FRONT, RESIDENCE, JAMES C. FENHAGEN, GUILFORD, BALTIMORE, MD.

Laurence H. Fowler, Architect.

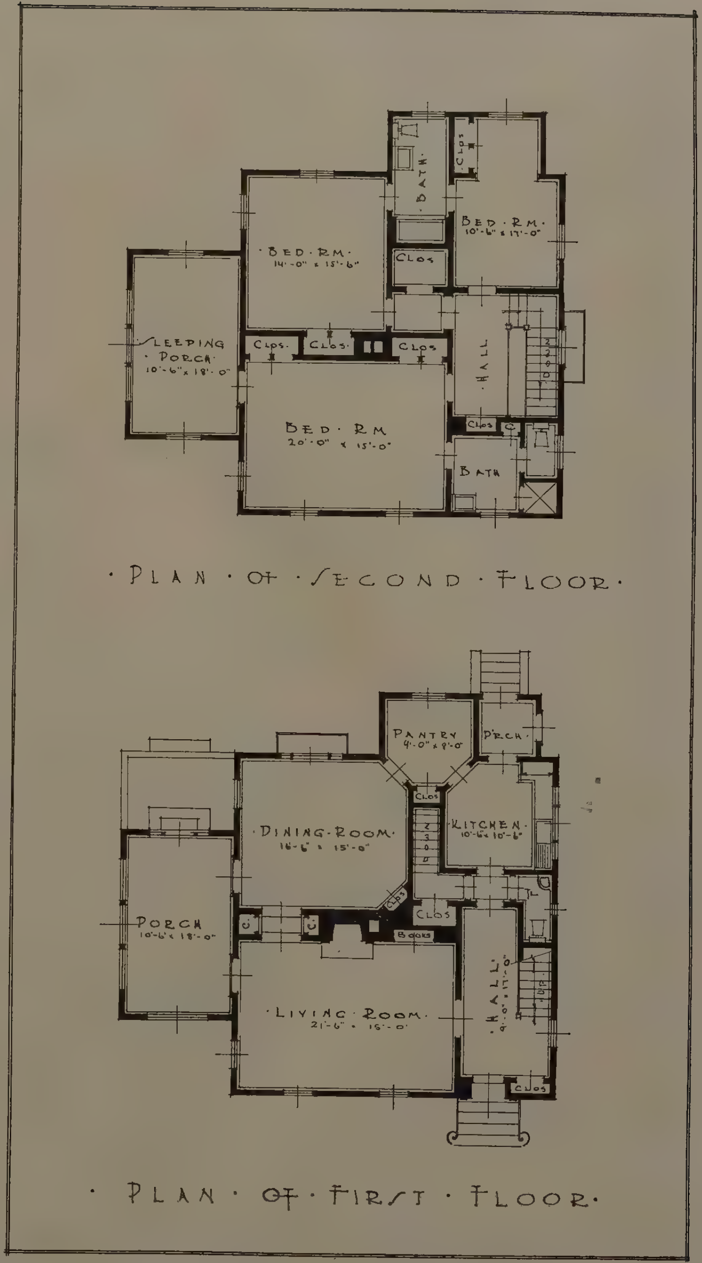


Armstrong & Koch, Architects.

HOUSE, RICHARD FOSTER, NEW ORLEANS, LA.



ENTRANCE DETAIL, HOUSE, RICHARD FOSTER, NEW ORLEANS, LA.



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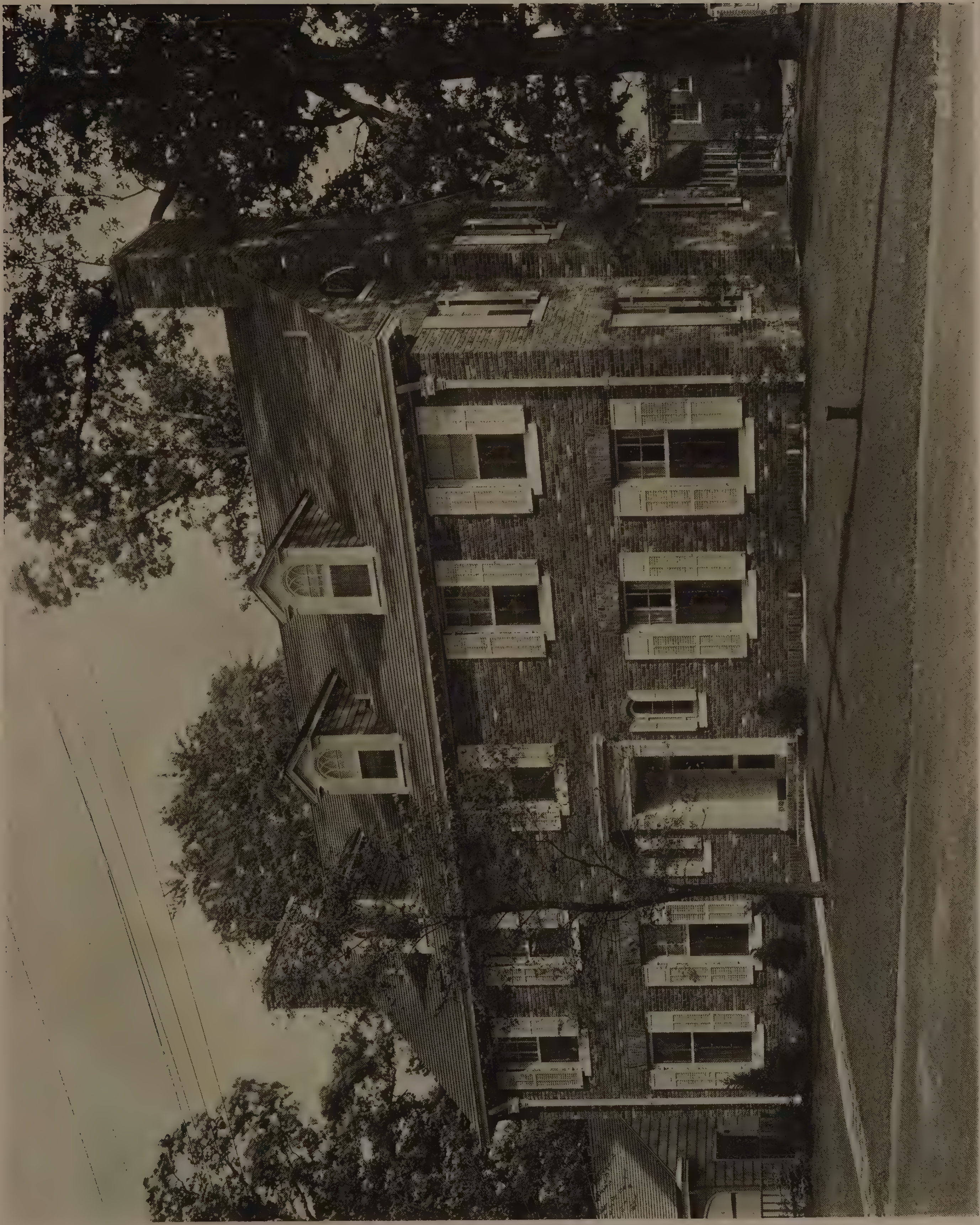
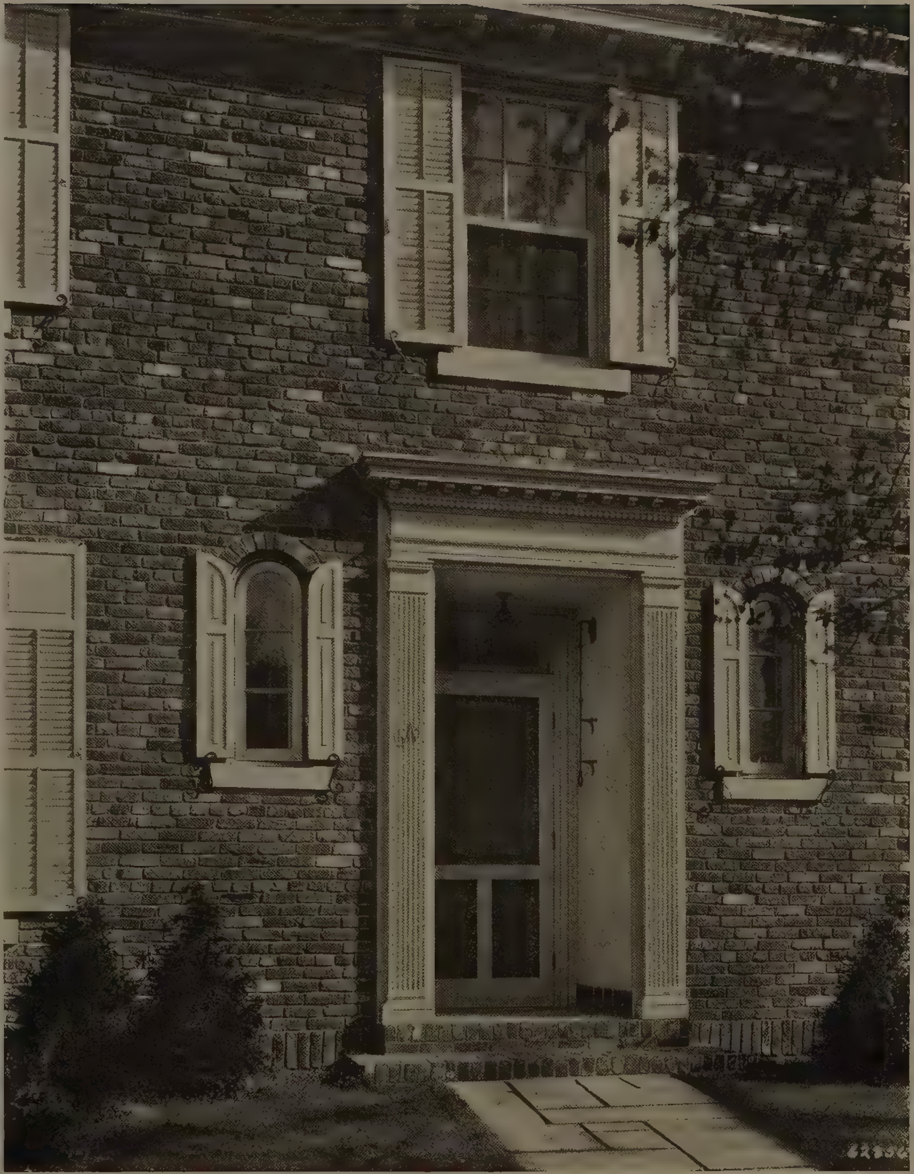
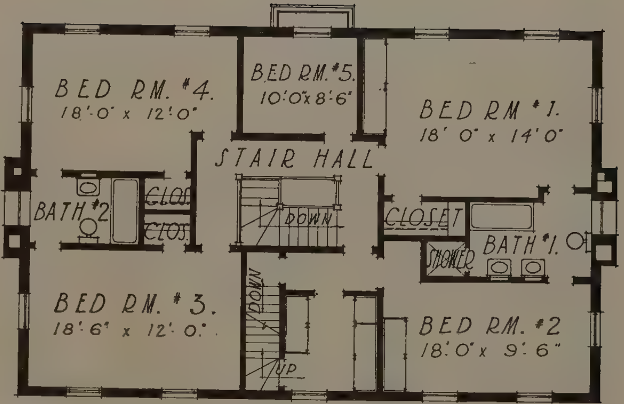


RESIDENCE, ROBERT O. DERRICK, DETROIT, MICH.

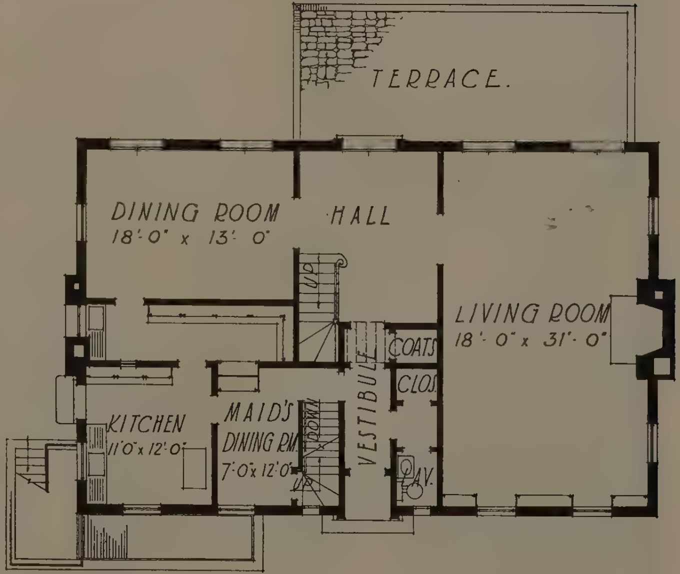
Robert O. Derrick, Inc., Architects.



ENTRANCE DETAIL, RESIDENCE, ROBERT O. DERRICK, DETROIT, MICH.

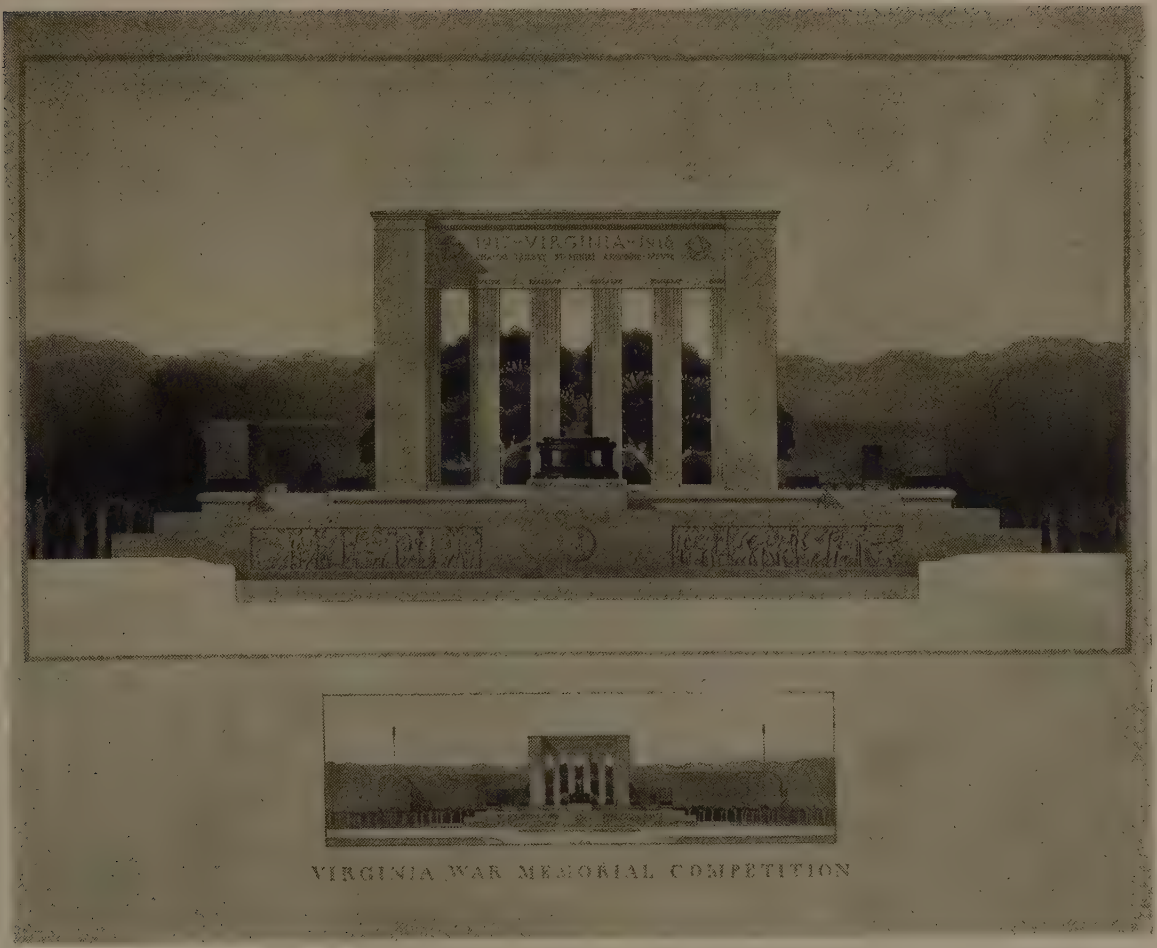


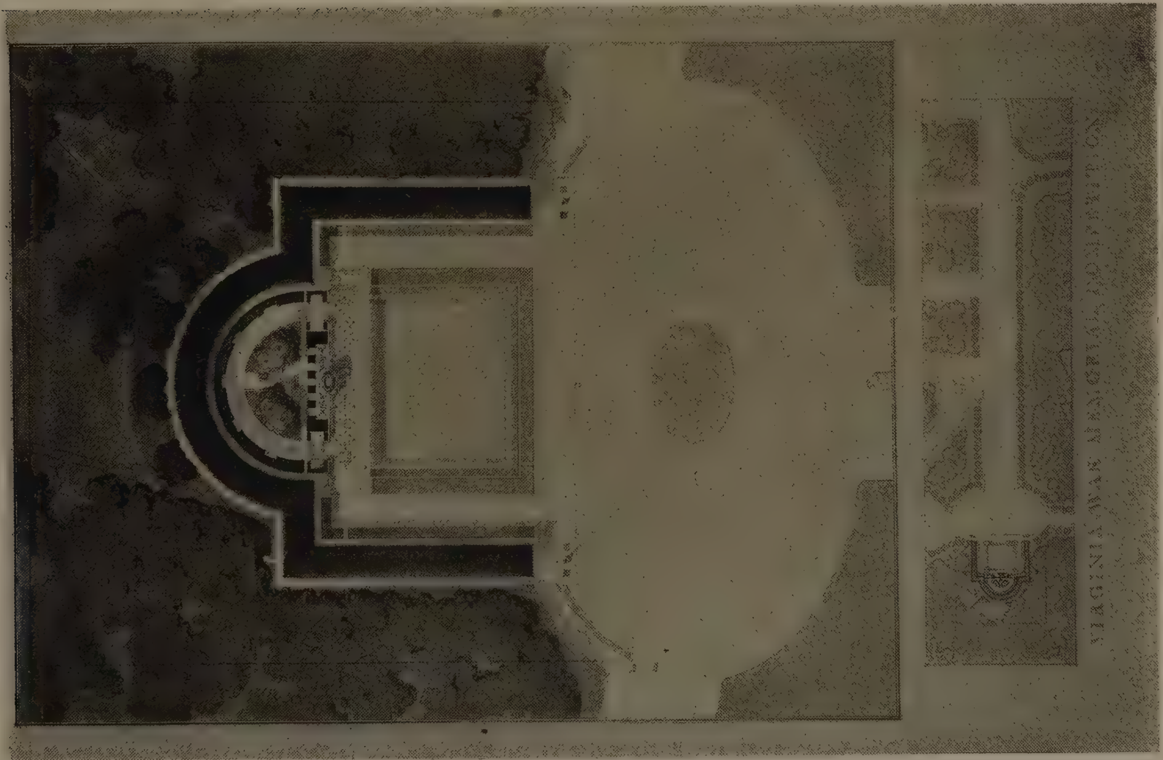
SECOND FLOOR PLAN



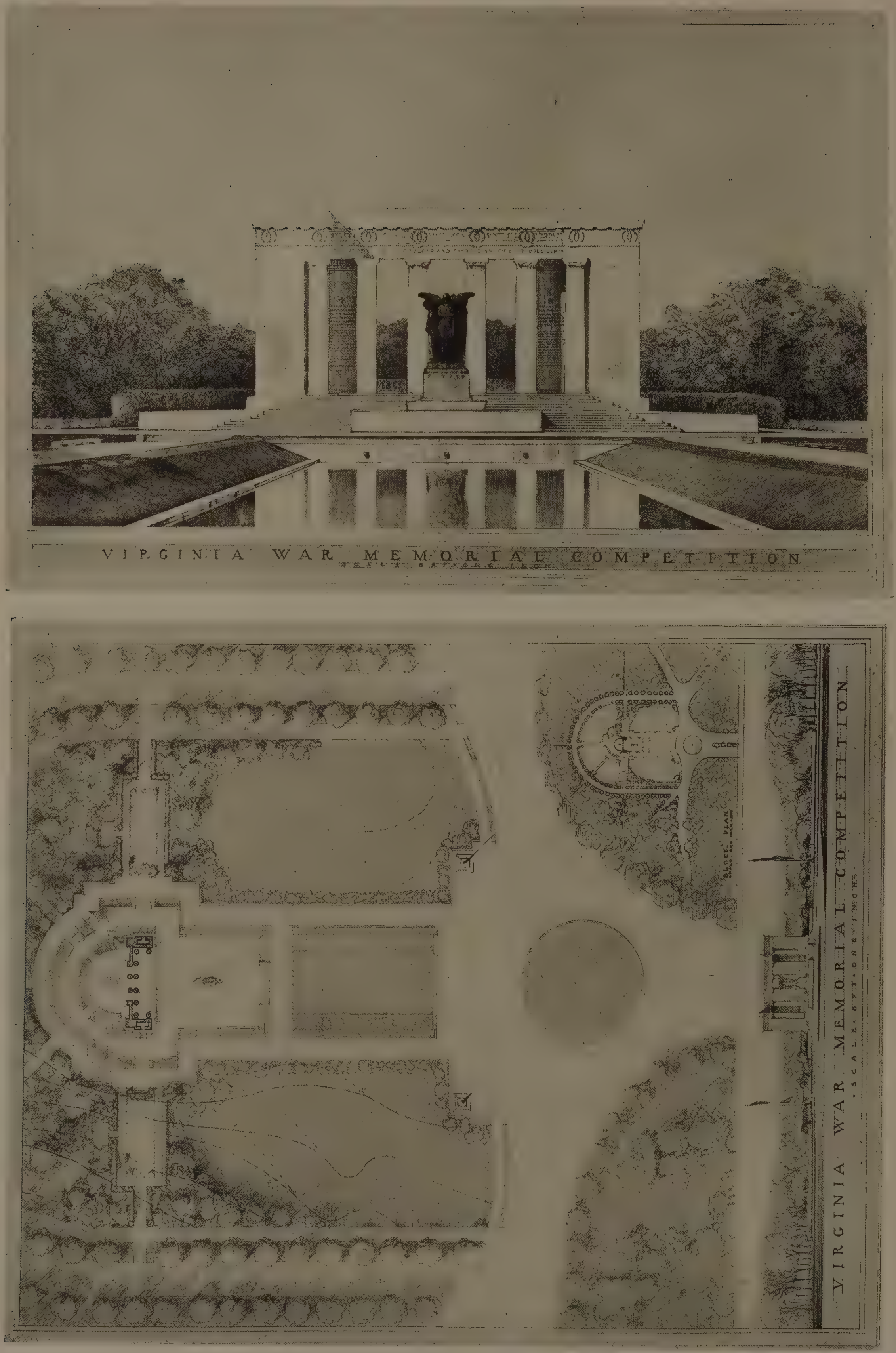
FIRST FLOOR PLAN

Robert O. Derrick, Inc., Architects.

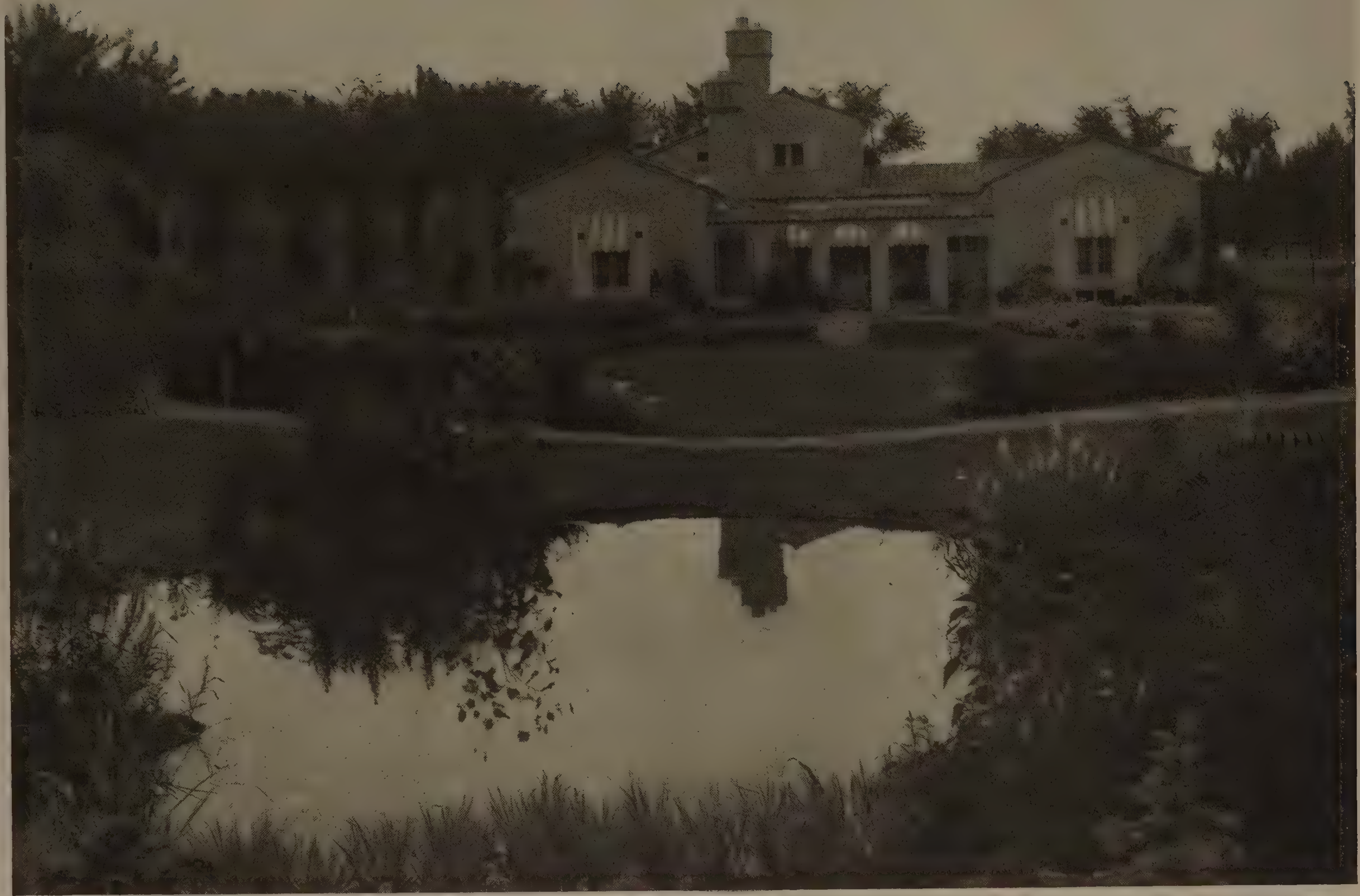




TO THE MEN AND WOMEN OF THE WORLD WAR AND THE UNKNOWN SOLDIER. WINNING DESIGN
Marcellus E. Wright, Architect; Paul P. Cret, Associate Architect; Berthold Nebel, Sculptor.

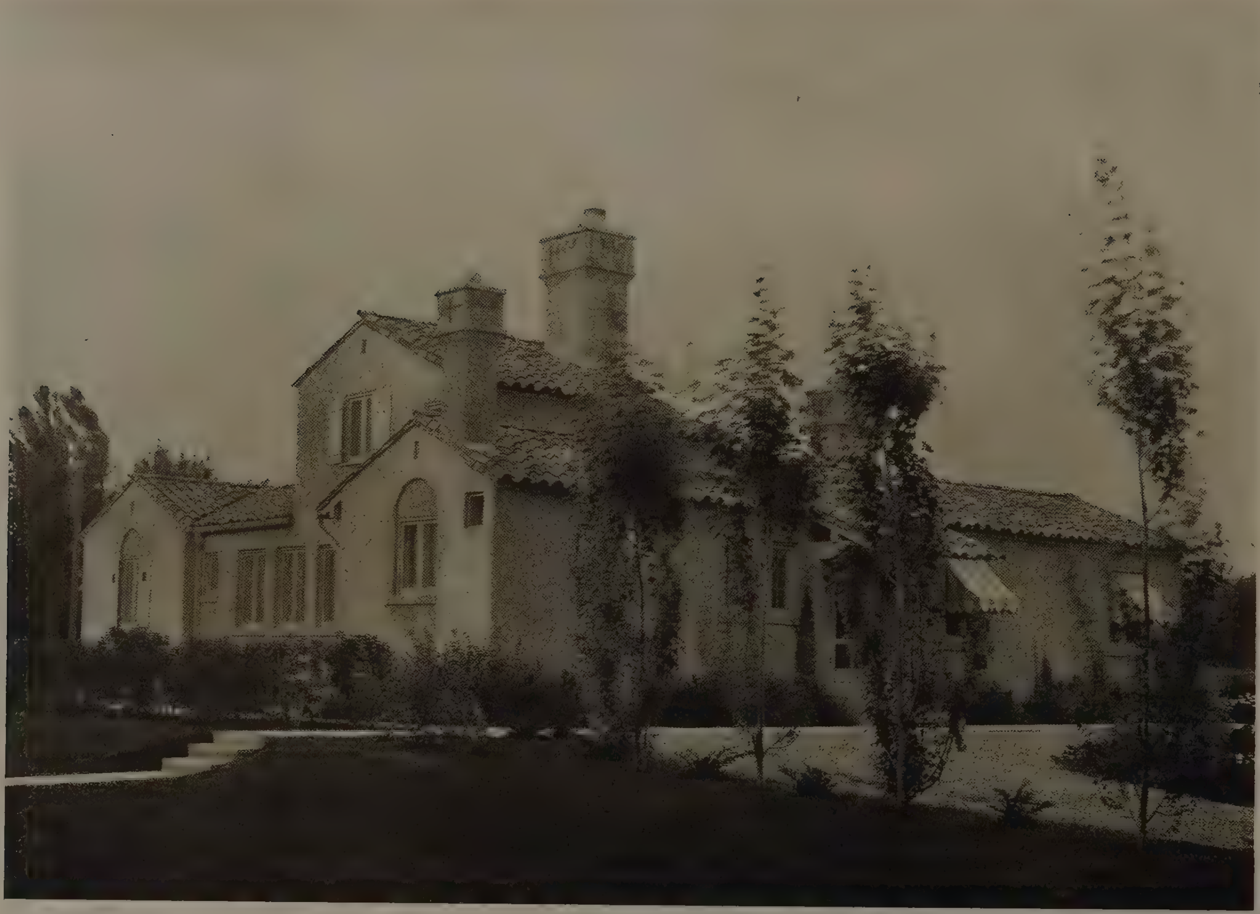

VIRGINIA WAR MEMORIAL COMPETITION
BLOCK PLAN
VIRGINIA WAR MEMORIAL COMPETITION

MEMORIAL TO THE MEN AND WOMEN OF THE WORLD WAR AND THE UNKNOWN SOLDIER. SECOND PRIZE.
Neff & Thompson, Architects; Armstrong & de Gelleke, Associate Architects; James Earl Fraser, Sculptor.

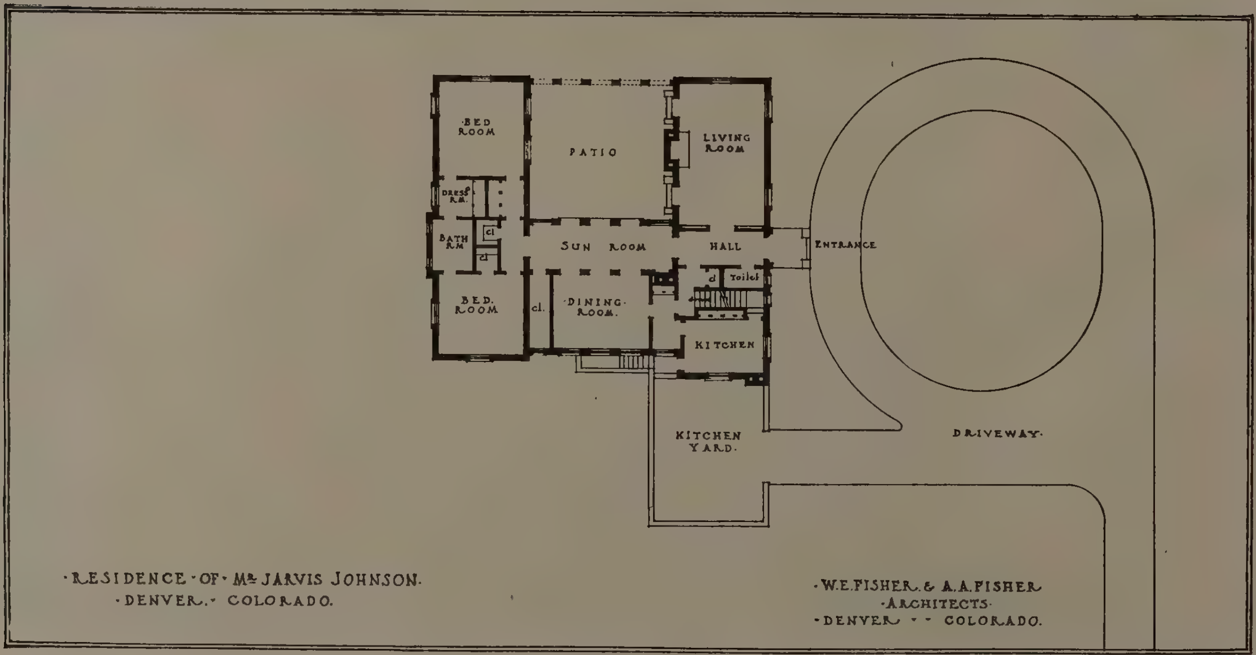


RESIDENCE, JARVIS JOHNSON, DENVER, COLO.

W. E. Fisher & A. A. Fisher, Architects.

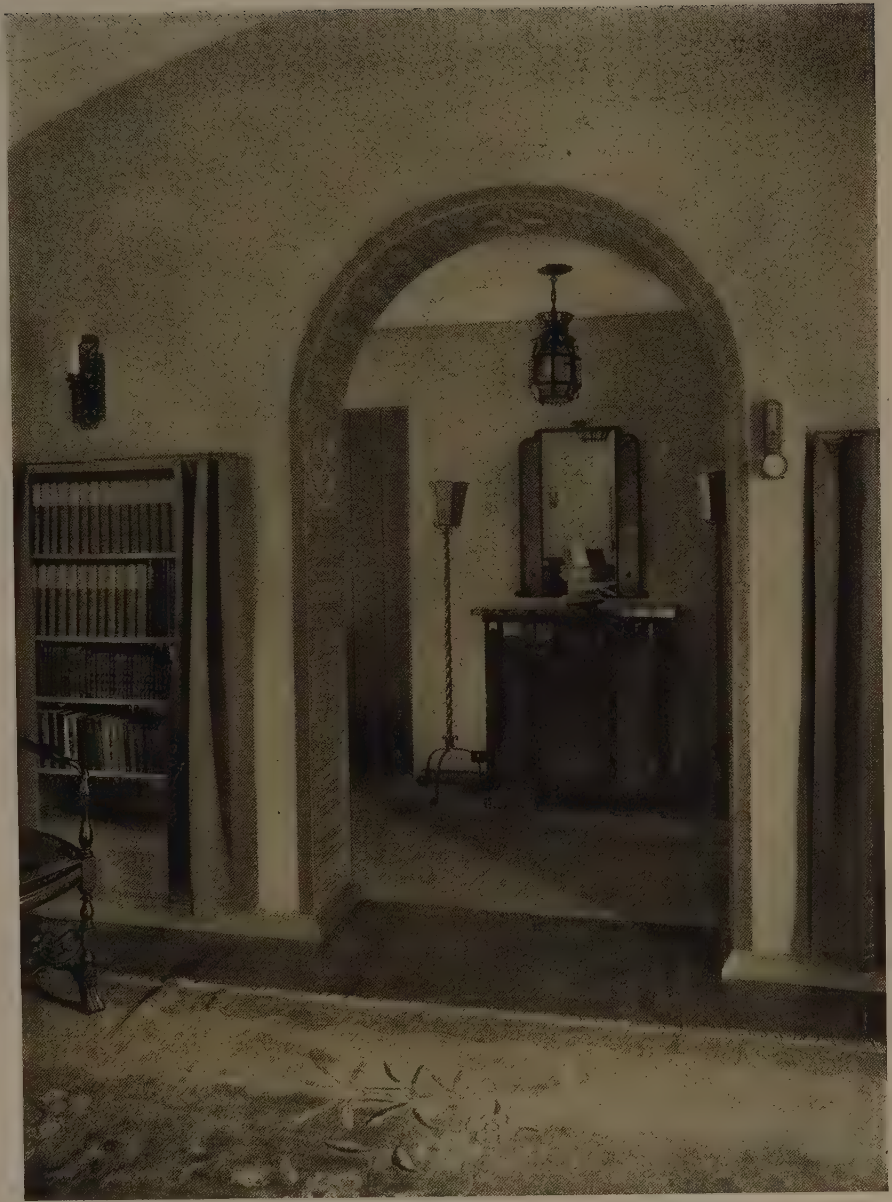


ENTRANCE FRONT.

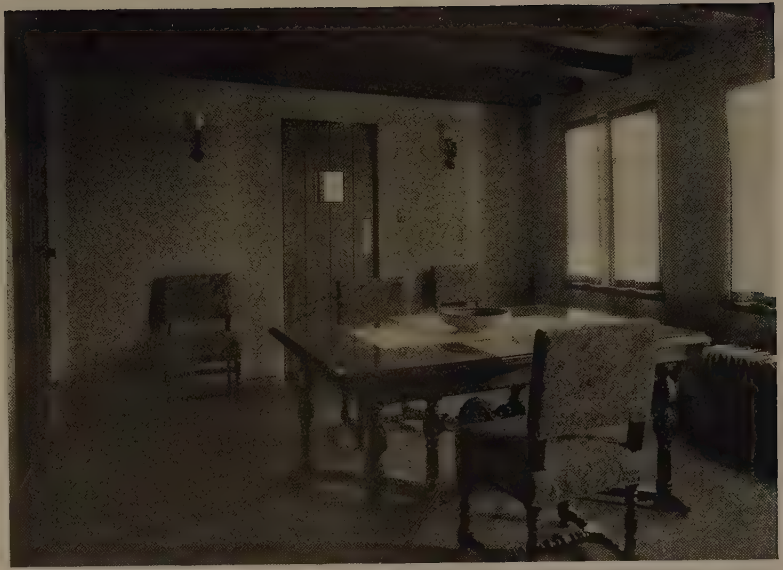


RESIDENCE · OF · Mr JARVIS JOHNSON.
· DENVER · COLORADO.

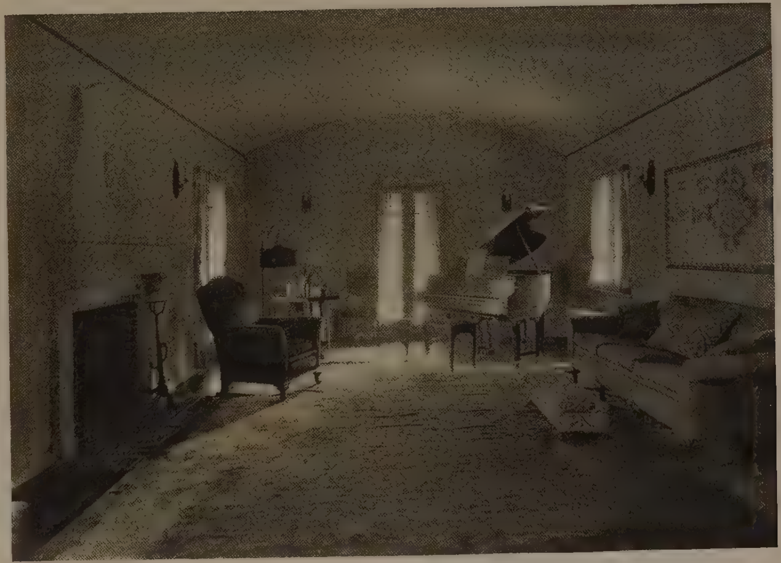
· W. E. FISHER & A. A. FISHER
· ARCHITECTS ·
· DENVER · · COLORADO.



LIVING-ROOM, TOWARD HALL.



DINING-ROOM.



LIVING-ROOM.

W. E. Fisher & A. A. Fisher, Architects.

RESIDENCE, JARVIS JOHNSON, DENVER, COLO.

The Effect of Gravity on Building Construction

By H. Vandervoort Walsh

Professor of Construction, School of Architecture, Columbia University

Article IV

WHEN A FEW MEN BEGAN TO THINK ABOUT GRAVITY

LET us speculate a little on the days when there were no scales to measure the weight of things. Here is a father who wants to divide his wheat equally between his two sons. There are too many small grains to count in this manner—one here, one there. But there are two baskets, exactly the same size. To fill one and then the other would give an equal division. Now in lifting them, it was noticed that they seemed to be about the same weight, or resisted the physical action of lifting them in about the same way. This observation stimulated other thoughts. Stones of equal size seemed to be equally heavy (in the old meaning, equally difficult to heave). Then, two children of the same size seemed to be equally difficult to carry.

A man's heart in the balance scale weighed against the feather of truth.

Representation of Ka descending a tomb shaft to join the mummy.

Out of this thinking, somehow, a device was invented to measure the weight of things. It was found that if a stick was suspended on a string from the middle, and a certain size stone or piece of metal was hung at one end, and a similar one hung at the other, the stick would remain horizontal, equally indifferent to the weight at either end. However, the slightest addition of weight to one end would make the stick tilt down. From this crude balance scale grew the idea of measuring weight, by balancing fixed sizes of stones or metal with other objects. Standards of metal weights had to be established to do this. In Egypt it was the tema which served as the unit to measure things on this scale, and it is significant, that this is the same name given to the large measure of wheat. At least, it suggests that our previous speculations might have some basis of fact. The tema was divided into ten utens and these into ten kats. These names are not well known, but the weights used by the Babylonians are more familiar to us. It is from their systems that the shekel and the talent come. Thus all civilizations had to invent an arbitrary standard by which the force of gravity was made to measure itself.

The development and increased use of the balance scale helped to sharpen men's minds on this point of equality. It became the symbol of justice. From a machine for measuring grains and metals it took on a symbolic function. In Egyptian carvings, men's hearts are pictured as being placed in the balance scale by the jackal-headed God Anubis, and weighed against the feather of truth. Waiting to devour their hearts, if the scales tip down against the feather-weight of truth, is Amemit the eater of souls, crocodile, lion, and hippopotamus combined.

And so step by step the balance scale suggested more and more abstract ideas of weight and measurement. The more familiar we are with its use the more we take it for granted. Our conception of what a pound is grows to be a mental picture of a certain quantity of butter or sugar, and we almost forget that this measure of weight is purely a relative thing that had to be arbitrarily established. We speak of this man weighing about 150 pounds, and you get a fair picture in your mind of how big he is, but if we say he weighs 214 Roman libra you get no mental picture of the size of the man. This particular measure means nothing to you, because you do not feel it and are unable to bring up mental images of it. It has not established itself in your mind deep enough to permit you to use it in creating abstract conceptions of weight.

However, when you are told that the suit-case you will have to carry to the station weighs 50 pounds, that means something to you in terms of feeling. Likewise you can transfer that sense to a pull in any other direction than downward. If the kite at the end of the string pulls 50 pounds, you understand what that means, and yet that is not gravity, although you are measuring that pull with a unit which had to do with gravity. In this way we get to the notion that we can measure any push or pull with the same unit which we established for measuring the weight of things.

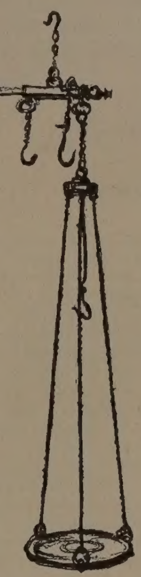
Now there was a certain Greek, Archimedes by name, best mathematician of antiquity, who must have been very amused with the balance scale, because he tried a number of experiments with it, and set down his observations. But, unlike his fellow men, he did not take this instrument for granted, for he was curious about it, and played with it, observing its antics.

Some of the things he noticed seem to be very obvious to us, but no one had ever set them down as rules. For example, he says, that equal weights placed at equal distances from the centre of the balance of the beam will cause the beam to remain in equilibrium or stay horizontal. Also, if to one of these weights is added some more weight, the beam will not remain balanced but tip down at the end where this additional weight is suspended. These very obvious things were noticed by all merchants who used the balance scale, but they never formulated them into laws of mechanics.

But he added to these observations others which were not so simple. He says that a heavy weight can be balanced by a light weight, if the light weight is moved out farther from the centre of balancing than the heavy weight. Perhaps this seems like common sense, but have you ever tried to prove it to yourself, or have you acccepted it because some one told you?

If you have not, get a yard-stick and suspend it by a string at the middle. Now hang a couple of cubes of artgum erasers 9 inches out from the centre of the stick on the left-hand side. Then hang one cube of artgum on the right-hand side 9 inches out from the centre. What happens? The yard-stick revolves around the centre, counter-clockwise, the side having the two erasers dropping down and lifting the other up. It does not stop until the stick is practically parallel with the string.

GREEK BALANCE SCALE AND MERCHANT


ROMAN BALANCE SCALE

Now slide the one cube out from the centre until it balances the two cubes. Where do you find the one cube, now? Out at the very end of the stick or twice as far out as the two cubes from the centre.

Here is the first lesson in mechanics, then. We have the yard-stick in equilibrium or balanced, when the two cubes on one side are 9 inches out from the centre and the one cube on the other side is 18 inches out from the centre. We can say this in another way. One cube is to the two cubes as 9 inches (the distance out from the centre of the two cubes) is to 18 inches (the distance out from the centre of the one cube).

Further experiments with various weights and distances which make for equilibrium of the scale-beam will always show that the light weight is to the heavy weight as the distance from the centre to the heavy one is to the distance from the centre to the light one.

Now this is as far as Archimedes went with his investigations, and the true significance of his observations was not realized until eighteen centuries later. To-day, nearly every schoolboy knows this to be the principle of the lever, and those who have played seesaw have been delighted in seeing the fat boy lifted from the ground because he is given the short side of the plank.

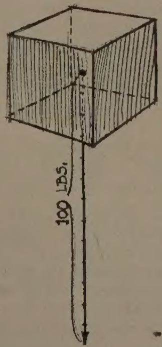
Intimately related to these laws of the balance scale is the idea of the centre of gravity. The middle point about which two equal weights balance on the beam is their centre of gravity. Each weight, too, has its own centre of gravity, and if it be suspended from it, it will balance so evenly about it that it can be rotated into any position about this point and remain there. The familiar and well-known illustration of this condition is the balancing of a circular disc of paper about its centre. This disc if held by a pin at its centre can be turned to any position and remain motionless. Likewise, if the diagonals of a rectangle are drawn and their point of intersection be pierced with a pin, the rectangle can be balanced in any position about the pin.

Archimedes understood the centre of gravity to be a point where the body could be supported and be turned in any position but always remain in equilibrium. He did not think of it as the position of the resultant pull of gravity on all the particles of which the body is made. This idea is a modern product of the imagination, well suited to visualize the action of the force of gravity. Indeed, it is a very convenient mental picture which is more useful than truthful. It is one that we have adopted to describe our force of gravity or any force, for that matter.

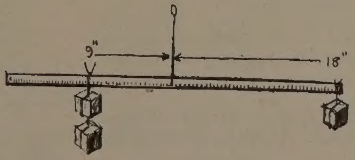
For example, here is a cube of stone, and it weighs 100 pounds. We mentally create a picture of a force of 100 pounds pulling down on that body by drawing a line from its centre of gravity down toward the centre of the earth. We usually put an arrow-head on the bottom of the line to show that the force works in this direction. If we draw the length of the line to some convenient scale, say $\frac{1}{8}$ of an inch for each pound, then we add to our mental picture a more complete description of the action of the force. For when we have shown the direction of a force, its path and its size, we have visualized enough facts about it to say that we know that force or have defined it. At least, we have seized upon enough of its characteristics to make a portrait of it, that is useful in considering its action in the building.

Now this picture of a force is quite modern, and none of the ancients understood it in the same way. Probably it will be modified in the future, when we understand better the nature of forces, but it serves its purpose quite well in our calculations. It is better than not having any impression at all, or believing as did our ancestors that the reason why a thing fell to the ground was because the air was too thin to hold it up.

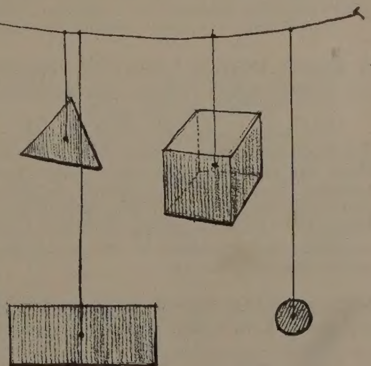
But such ideas were the results of the teachings of Aristotle, whose natural philosophy, along with the Bible, was the foundation of all knowledge in the Middle Ages. Men



DESCRIBING A FORCE GRAPHICALLY



· BALANCED ·


CENTERS OF GRAVITY

believed that bodies were classified as absolute heavy bodies and absolute light bodies and that they sought their places, the light bodies belonging on top and the heavy bodies down. Motions were classified as natural or violent. Large bodies were believed to fall quicker than small ones and their velocity of fallings was supposed to be proportional to their weights.

It will be recalled that the independent thinker, Galileo, attacked this theory and to prove that it was wrong dropped different size weights from the leaning tower of Pisa, and although the little weights reached the ground as soon as the heavy weights, the schoolmen of his day would not relinquish their beliefs, but created such an uproar that he had to leave Pisa for Padua.

It is to this thinker that we owe the first clear description of a force as a mechanical agent. But he summed up certain ideas that had been growing in other men's minds, and these we must consider, too, in their relation to the development of the knowledge of building mechanics.

Book Reviews

A HISTORY OF ARCHITECTURE IN LONDON ARRANGED TO ILLUSTRATE THE COURSE OF ARCHITECTURE IN ENGLAND UNTIL 1800, WITH A SKETCH OF THE PRECEDING EUROPEAN STYLES. By Walter H. Godfrey, Architect. With a Preface by Philip Norman, LL.D., F. S. A. With 250 illustrations, 7 maps and descriptive guide to buildings. Charles Scribner's Sons, New York.

This is an excellent guide-book for the architectural student. The chapters deal with English Romanesque (Norman), Gothic, Tudor, Renaissance, Georgian, and the many illustrations show notable examples of the various periods.

The series of maps, on which the location of important buildings may be traced, should prove very helpful, and save a lot of time.

We recommend it to the student and to the architect who may be on his way to, or possibly only thinking over, the London he last visited. Of course, the book is all given over to old London; the modern city is not considered.

PROBLEMS IN ARCHITECTURAL DRAWING. By Bush & Townsley. The Bruce Publishing Company, Milwaukee, Wis.

"Problems in Architectural Drawing" is a beginner's course based on a modern house of colonial design. The book is divided into two sections: Series A presents each problem in pictorial form, either isometric or perspective; Series B presents the working drawings in orthographic projection. Simple statements on house planning, house construction, with eight typical American homes preceding practical work of drafting.

The instructions for executing plates are clear and complete. Plates are 7 x 10 inches, allowing for detailed study. Ample instructions are given for walls, stairs, details, etc. The plates are progressive in difficulty, and so developed to "force the pupil to think." The book is of invaluable aid to the student, tradesman, mechanic, etc.

RELATION IN ART: Being a Suggested Scheme of Art Criticism, with Which Is Incorporated a Sketch of a Hypothetic Philosophy of Relation. By Vernon Blake. 8vo, illustrated. Oxford University Press, American Branch, New York.

"After mature deliberation I have decided to begin by putting forward the purely abstract philosophical considerations first." This the author has done in a series of chapters that will call for close attention and a mind that likes to engage in subtleties and theories out of the common. The chief aim of the book, according to the preface, is "to look on the means of plastic expression as a language fitted to express forms of thought. These means are examined and analyzed on one side; on the other, the form of thought of different epochs and of different peoples and different artists is discussed and co-ordinated with technical expression."

If the first part of the book seems difficult to follow, the reader may begin with Part II and take up with the author his various opinions and comments upon Architecture, Sculpture, Drawing, Form in Drawing, Drawing in Painting, Composition, Light and Shade, Color, Technic, Recent Art.

It is a book to provoke thought and concentrate attention.

A SHORT HISTORY OF THE BUILDING CRAFTS. By Martin S. Briggs, F. R. I. B. A. Illustrated, 12mo. Oxford University Prses, American Branch, New York.

This book is intended to link ancient architecture with modern building construction, and to show architect and craftsman alike how building work was done long ago, the various "trades" or crafts of brickwork, masonry, concrete work, carpentry, joinery, ironwork, slating and tiling, plastering, plumbing, and glazing, are historically treated in successive chapters. At the beginning is a brief general sketch of the position of architects and craftsmen in the past. More than 250 sketches by the author illustrate the text.

THE TOUCHSTONE OF ARCHITECTURE. By Sir Reginald Blomfield, R. A. A., etc. Oxford University Press. American Branch, New York.

The various essays in this small book—"State-Aided Training in Art in England," "The Artist and the Community," "Famous Men," "The Outlook of Architecture, 1913," "Atavism in Art," "The Bridges of London (1815–1920)," "The Tangled Skein," "Art in England, 1800–1920," "Greek Architecture," "Christopher Wren," "Architecture and Decoration," "Off the Track," "Some Thoughts on Art"—are addresses delivered on various public occasions. They are rich in experience and have a personal and individual note that stimulates thought. The author's attitude is that of one trained in the old school of hard work. He sees with clear vision the anarchy in art that follows the preaching of short-cuts, the tendency to break up tradition, to try to sail the difficult region of art without a trustworthy and tested compass.

It is a plea for sanity in the teaching and practice of all the arts. Art is in a bad way in England, and the pace of life there, "the motor standard," is unfavorable to the practice of the arts.

Contrary to many of our English observers, the author does not look upon our skyscrapers with approval, but we think that his comment, "the solutions have not been happy because the essential elements of tower design have been forgotten," would be modified if he could see the results in New York since the zoning laws have come into being.

SMALL COUNTRY-HOUSES OF TO-DAY. Volume Three. By R. Randall Phillips, Hon. A. R. I. B. A. Charles Scribner's Sons, New York.

No doubt many of our readers are familiar with the earlier books by the author. He presents an interesting survey of English domestic architecture of to-day, and affords an opportunity to make comparisons with work in this country. There is no denying the charm, the essential element of domesticity in a number of these houses, and no one could possibly mistake any of them for anything but English. They are reminiscent of the English countryside of many generations. The excellent and abundant illustrations give elevations, interiors, plans, and often the landscape setting. The accompanying text gives details, regarding materials and any special features of construction.

ELEMENTARY PRINCIPLES OF SURVEYING. A Text-Book for the Use of Students, Engineers, etc. By M. T. M. Ormsby. Second revised edition. With One Hundred and Forty-two Diagrams and Illustrations. Including Five Folding Plates. D. VanNostrand & Co., New York.

This is a standard work of value, and offers the student an elementary course in surveying, and makes an admirable text-book for both student and teacher.

LIGHT, PHOTOMETRY AND ILLUMINATING ENGINEERING, EMBODYING A THOROUGH REVISION OF LIGHT, PHOTOMETRY AND ILLUMINATION. By William E. Barrows, Professor of Electrical Engineering, University of Maine. McGraw-Hill Book Co., 379 Seventh Avenue, New York.

This is a text on illuminating engineering and a reference work for the practising engineer, growing out of the author's previous books, "Electrical Illuminating Engineering," and "Light, Photometry and Illumination." About two-thirds of the present book is entirely new. The book presents the accepted principles and practice of modern artificial illumination and the choice of lighting equipment. Various types of lighting installations are thoroughly discussed.

The new Fifth Revised and Enlarged Edition of PRACTICAL STEAM, HOT WATER HEATING AND VENTILATION, by Alfred G. King. The Norman W. Henley Pub. Co. 2 West 45th Street, New York.

This is the most complete and up-to-date work on this subject, and has been written for all engaged in the practice of steam, vapor, hot-water heating, and ventilation. The author has spent over thirty-five years in the heating trade and his experience covers every angle of the business.

Shop practice, "Tricks of the Trade," methods of estimating radiation, valuable rules and tables, and hundreds of helpful hints and other data are given for the use of heating contractors, engineers, architects, and steamfitters. The very latest methods and ideas in heating practice are covered and the installation of modern systems fully illustrated.

For the Preservation of Richardson's Famous Allegheny County Jail Building, Pittsburgh

To the Editor of "Architecture,"
New York, N. Y.

Dear Sir: The Pittsburgh Chapter of the American Institute of Architects has noted with concern the proposal to destroy the Allegheny County Jail building. This organization has studied the subject with care and wishes to submit herewith certain specific and practical suggestions which are designed (1) to clear off some of the area now occupied by the jail structure, as a concession to traffic needs; (2) to make a modification of the present use of the structure; and (3) to retain the original and most interesting portion of the structure as a combined utilitarian building and architectural monument.

Recommendation No. 1. It is recommended that the present Allegheny County Jail building be restored to its original area and exterior condition as designed by Henry Hobson Richardson, one of the greatest American architects, and that the interior of the original Richardson jail be remodelled to serve as a county "hall of records."

Recommendation No. 2. It is recommended that such a solution of the thoroughfare, bridge approach, and kindred city-planning problems of the jail locality be adopted as will adequately meet the city's present and future traffic requirements and will not prevent the restoration of Richardson's architectural masterpiece as a necessary, utilitarian, and dignified building. It is confidently asserted that this building will prove a credit to the municipality and an appropriate companion to both the adjacent public buildings and to the mercantile developments that will inevitably follow the completion of the Liberty Bridge.

With respect to these recommendations, the Pittsburgh Chapter of the American Institute of Architects desires to say:

(*a*) The accumulation of public records has made the question of their safe and accessible housing in a "hall of records" an obligation not much longer to be neglected. The cost of acquiring an expensive site near the court-house, together with the cost of erecting a suitable hall of records building, might be expected to agitate the taxpayers if the present suggestion were not so pertinent and satisfactory.

(*b*) To restore the jail building to Richardson's original design will necessitate the removal of the forbidding-looking wall of the jail yard, the diagonal northeast wing, parts of the north wing and the east wing, and, perhaps, some other minor portions.

(*c*) It is granted, of course, that the encroachment of the jail structure upon Diamond Street should be corrected.

(*d*) The Pittsburgh Chapter A. I. A. is concerned to tender its services to public officials, in advisory capacity, during the development of the suggested alterations, so that a great architectural monument may not be unduly mutilated or destroyed; or this chapter will undertake to promise, on behalf of its parent body, the American Institute of Architects that an advisory committee will be appointed for the same purpose by the president or board of directors of the institute.

The Pittsburgh Chapter has been careful to ascertain that a feasible plan, meeting the conditions of the chapter's second recommendation, has actually been devised. No doubt this plan will be made public at the proper time by the City Planning Commission, inasmuch as that department of the city government is now engaged, by direction of the City Council, in developing general plans of which the plan here mentioned is a part.

The subject-matter of the present communication has been given very careful study by this chapter and by a special committee appointed for the purpose. A formal resolution of the chapter is, for your further information, quoted in full as follows:

"Whereas, The group of buildings known as the Allegheny County Court-House and Jail has been for years recognized, in this and foreign countries, as an American architectural monument of outstanding merit; and its architect, Henry Hobson Richardson, who is placed among the greatest architects of this country, regarded this group as his best work; and

"Whereas, Recent serious proposals to destroy the jail portion of this masterpiece have been given considerable commercial publicity; and

"Whereas, There appears to have been no serious attempt to reconcile the alleged objections to the present use of the jail building and various municipal requirements;

"*Therefore Be It Resolved*, That the Pittsburgh Chapter of the American Institute of Architects present to the proper public officials and to local civic bodies the proposal to reduce the jail structure to its original extent and exterior condition and to remodel the interior to serve as a much needed hall of records, to the end that this architectural masterpiece may be conserved to future generations of Americans as an historic and cultural asset."

Very truly yours,
Howard K. Jones, *President.*
Thomas W. Ludlow, *Secretary.*

Welcome, Mr. Whitehead

It is with pleasure that we read the announcement in the November number of *Pencil Points* of Mr. Russell Whitehead's assumption of the editorship of that interesting and progressive journal for the drafting-room. His exceptional experience and fine taste will add further strength to its pages.

Announcements

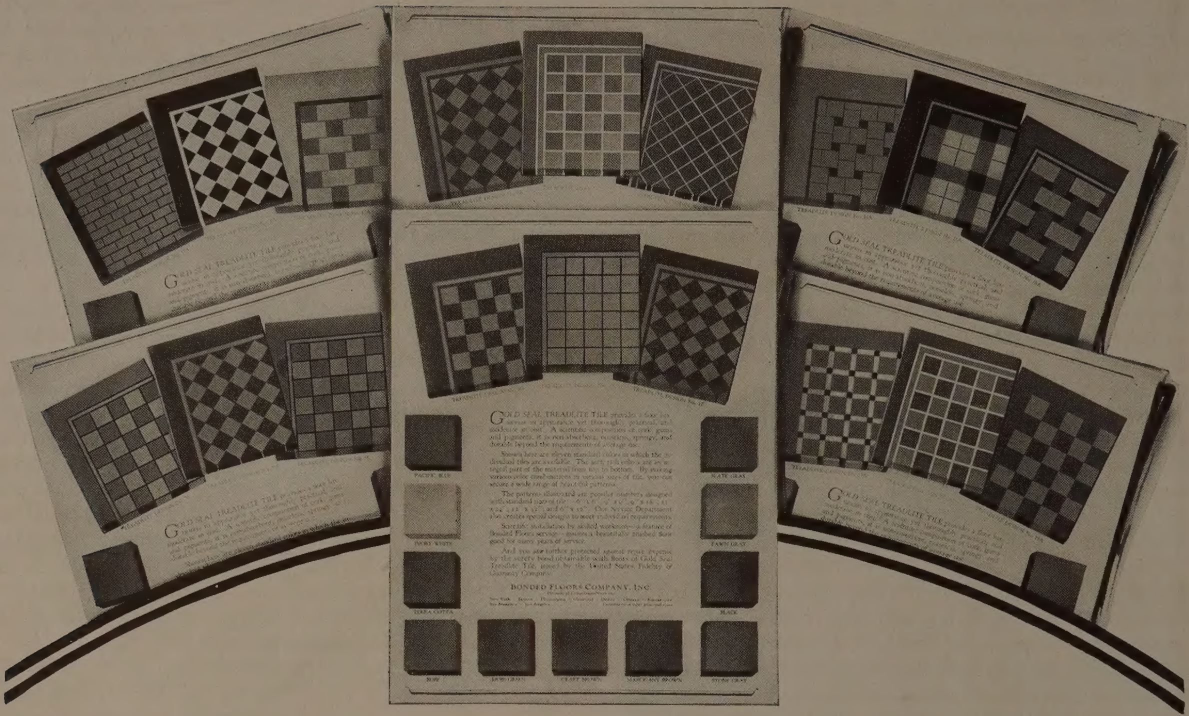
Hubert Marion Garriott and William Gregory Rammel have severed connections with the firms Allen & Garriott, Indianapolis, and Allen, Garriott & Rammel, Logansport, Ind., and will continue the practice of architecture under the style of Garriott & Rammel, architects and engineers, with new offices at 1151–52 Consolidated Building, Indianapolis, and 4 Masonic Building, Logansport, Ind. New catalogues and samples are desired in both offices.

Hugh T. Keyes, architect, has moved his office to 635 Free Press Building, Detroit.

Randolph H. Almiroty, architect, announces that his offices are now located at No. 2 West 45th Street, New York City. Telephone No. Murray Hill 4990.

D. Wentworth Wright wishes to announce that he has opened an office at 9 Highland Place, Maplewood, N. J., for the practice of architecture, specializing in residential work. Catalogues requested.

Robert B. Crowe, member American Institute of Architects, Tampa, Fla., has opened an office for the practice of architecture, suites 2 and 3, Plaza Building, Tampa, Fla. Manufacturers' catalogues and samples desired.



For Your Information File—

These six pattern sheets have been prepared to give architects an idea of the all-round adaptability of floors of cork composition tile.

Each sheet reproduces eleven standard colors in which Treadlite Tile is made; shows three attractive examples of how the various colors of individual tiles may be combined; and illustrates a typical installation.

The architect will find this series of color sheets useful in many ways. It will help him to clarify his thoughts on floors and to visualize accurately how various combinations of Treadlite Tile look when installed. It will give him something tangible to show clients who have to be informed on the idea of artistic, colorful floors. It will help him to choose or create suitable floor designs for interiors requiring decorative floors.

We will be glad to mail you a complete set of these useful pattern sheets. Working specifications on *Gold Seal* Treadlite Tile are also available, if you wish.

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